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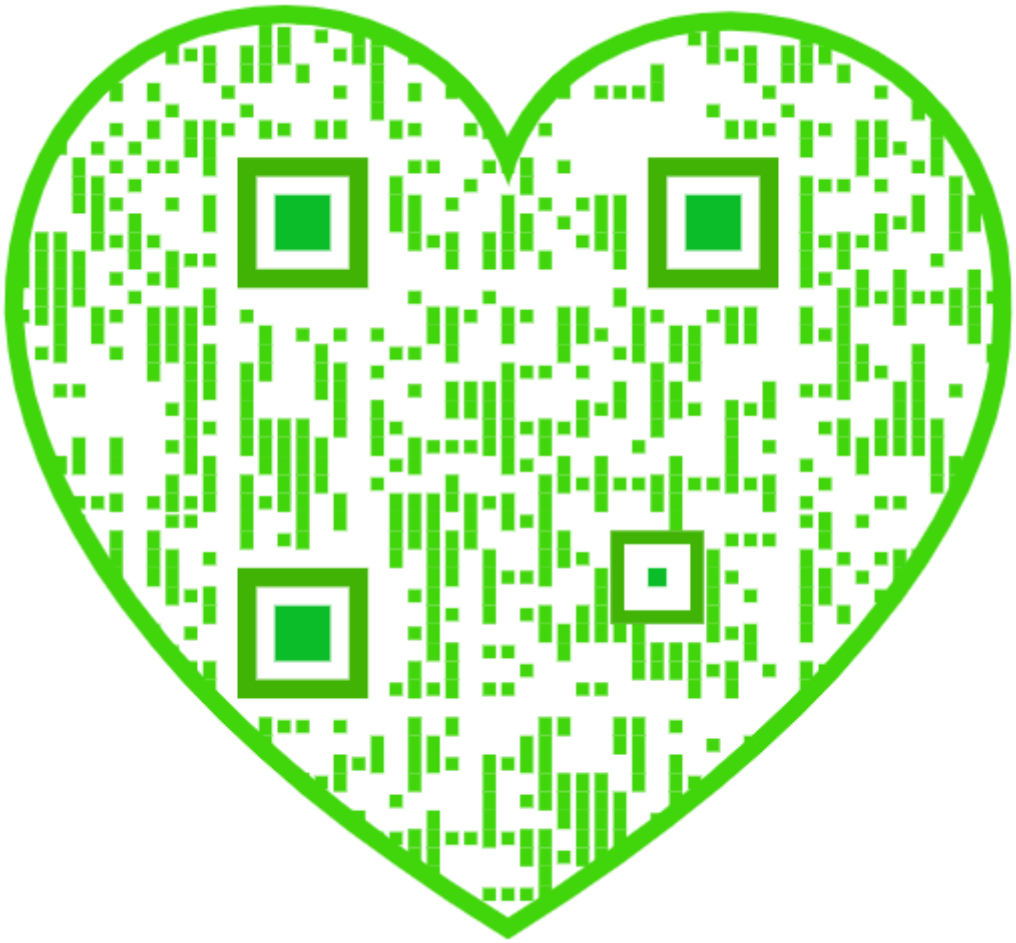

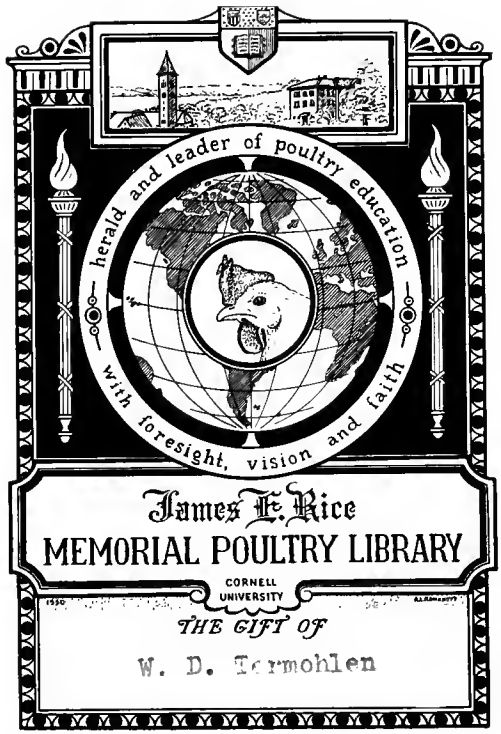

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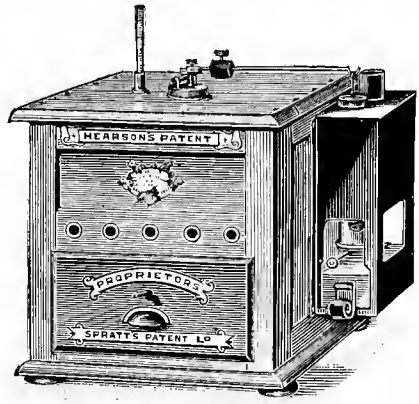

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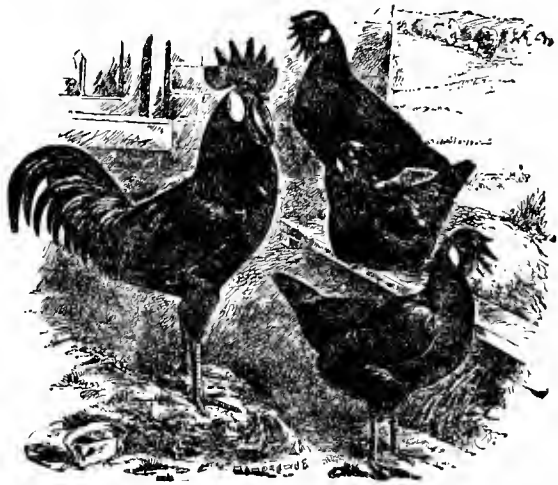

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THE INTERNATIONAL POULTRY BOOK

BY

GEO. WOODWARD,

BALLARAT,

VICTORIA,

AUSTRALIA.

m.H.

PREFACE.

POULTRY literature is a microbe, it dies on unsuitable soil, but to all cultured races of the world, if the environments and surroundings are suitable, the germ is easily impregnated into the mind, which incubates and starts the emotions, the brain begins to feed the system, and a picture of fowls, a poultry exhibition, a foster mother or hen with day-old chicks, fixes the will power, while the eye is also entranced by the mannerisms of young life. Maybe it is the young life in the human race, the animal world, and bird life, which captivates and thrills our magnetism, and the babyhood days of chicks or ducklings have almost a sentimental attraction for all classes young and old, and no matter how hardened our faculties, the All-Seeing Eye is the pivot, and commands the brain for the moment.

With so much poultry literature published in the various weekly and monthly periodicals throughout the world, it is pretty hard to feed the educated fanciers, breeders and householders with any original copy, as the breeding of chickens and the rearing of fowls is now such a wonderful system in detail that it seems incredible any more enlightenment can be given to the human race.

Incubation is practically solved, the brooding of chickens an easy problem in suitable climates, and little left to learn in strenuous climates, while the building up of egg yields, or any particular colour of feather in an intelligent breeder's hands, is a simple pastime to amuse him as a recreation from ordinary duties.

Poultry is a business problem to-day in Australia, Denmark, Canada, Ireland and the United States, and in England rapidly making up leeway. Ten years ago in Australia keeping poultry was purely a matter of sentiment amongst all classes; to-day, after eight years of progress and scientific breeding, coupled with a suitable climate, Australia easily leads the world in breeding birds for egg production. To those residing in other parts of the world, unless they visited Australia, no words of mine could convey the wonderful climatic conditions existing for the production and upkeep of bird life. Wind is really the only drastic foe to contend against, as the winter and summer here are very often intermingled with one another, but not long enough to affect the birds; we have no extremes,

The majority of people keeping poultry in these times are after a profitable investment, at least it generally shows that way, but often it is a pure speculation.

If a man has only a small capital and likes birds, details, with a disaster or two chipping in now and then as a warning to keep his faculties primed, and he will follow the general principles of this book, then progress will be assured.

I have no time for a smooth railroad track in poultry culture. You must be prepared for the side tracking of Nature on all your schemes, as no genuine progress is made without pin-pricks of disappointments. Let your enthusiasm shatter the bulwarks of disease and disaster, your determination and will-power will jump you onwards to victory.

Without being egotistical, I can say that I had a stormy passage in poultry the first five years that I know would have shattered fickle-minded workers, but I dug the foundation deeper, and finally I rose to the highest pinnacle of fame in my own speciality; and, readers, I borrowed ten shillings to buy my first pair of birds!! Never despair. Certainly we cannot all arrive at the top, but half-way up the poultry ladder in the utility world to-day a good living is to be had, a free life, and a sound awakening to the charm of scientific breeding and the working of Nature in the incubator room.

In the commercial world there is room for unlimited numbers of breeders, without affecting the price of eggs, as the ordinary farmer and householder command the market in the middle of spring and summer, while their fowls are laying eggs are cheap and reasonable, the egg farms make no difference, and when the farmers' fowls cease to lay, then the market rises, as only the fresh egg, the genuine fresh egg, is obtainable from the bred-to-lay birds on the egg farm.

The combined breeding of show and pedigreed egg-laying stock is the best double-barrelled proposition to use once you have mastered your apprenticeship, as pedigree stock of laying or show strains commands a highly remunerative price. Once you have let the public know you are a specialist, a consistent breeder of high-class birds, the potentialities of your business will astonish your susceptibilities.

Once you have made a name and have something good to dispose of, advertise in the best papers suitable for the disposal of your stock, and you will wonder at the power of the pen. Some men are grand breeders but wont advertise, and although they may be breeding better stock than their neighbour, still the neighbour is catering to the educated masses, by the aid of the press, his birds are selling freely, his enthusiasm is replenished, he buys better stock, and beats his rival next year both in sales and the show pen, and the conservative breeder is left in the doldrums. No, if you have stock, don't lock it up, disperse it. Let your name become a household word on the hearths of the poultry fancy. If you cannot

make out an attractive advertisement, then surely you have a friend, or failing that, someone whom you can pay for their brains, as advertising is a gift, and only those with the necessary training, tact, and business methods know how to bring the full return, as more money can be wasted on unsuitable advertising than by any other leakage in your business.

If a man is breeding for utility only, then he will not worry about correspondence or advertising, so if you want to make a living without any display, then it is yours. That's the beauty of poultry. You can come into the shop window of the world, bring all your magnetic enthusiasm into touch with your fellow-breeders, interchange your ideas, come into contact with personalities who inspire you with the grandeur of the ways of the Creator, who inspire you for fresh efforts when some calamity has worried you, and who inspire your hidden talents that have been laying dormant, until you are finally recognised as an expert judge and writer of articles in the leading journals; or you can follow the quiet *régime*, just live with your fowls until environment and surroundings teach you that some safety valve is needed as a recreation from rather a humdrum existence.

Working out a plan of the probable profits of poultry from keeping a few in a backyard is a delusion and a snare, and is mainly responsible for more financial wrecks than any other scheme. At the best it is all a matter of probabilities which are always cropping up. If you set eggs you think you will secure so many chicks, while if you hatch 2,000 chicks the probabilities are you will rear so many, etc. There is only a general average law if working on the best of conditions.

However, the horizon is far brighter now for a new beginner than ever before, as in Australia and all temperate zones free from any local disease the keeping of poultry for profit is only a matter of ordinary brains and commonsense. Six hundred laying fowls will give you a return of £3 a week for eggs after paying for feed, deaths and depreciation of plant in any part of Australia and New Zealand, and Tasmania comes under the same category. Many will do better; I know that £5 a week is being made from 600 high pedigree birds, but I am not showing a superabundance of profits, but a flock average under normal conditions. By this I mean the owner to have had twelve months' experience, suitability of plant and stock. I will readily admit that failures even now will ensue, as fully 50 per cent. of the human race are so highly sensitive and fickle that they are always pining for new schemes every twenty-four hours, metaphorically speaking. They belong to the get-rich-quick element. There is more real enjoyment in forging ahead week by week than in drawing it all in a lump, with the probability of losing it through inexperience. The drones of the poultry yard were mainly responsible for the losses, but as any chump can now select and reject them from the pens, one of the greatest drawbacks is mastered.

I am quite willing to admit that England's climatic conditions are not suitable for the flock average we attain in Australia, but there must be other causes not known to English breeders.

In Ballarat, Victoria, part of our winter is drastic. We rarely miss snow, and as we are 2,000 feet above sea-level, the wind is always more or less on the blow. The climatic changes are greater than in any part of England, as only this week, November 16th, 1912, at 3 p.m., you only wanted a shirt on, and at 4 p.m. everyone was rushing for overcoats. With the drones discarded, England should reach a flock average of 150 eggs a bird, coupled with the proper intensive housing. The selecting of drones and the housing methods are all treated of in their respective chapters.

The different Governments cater for the public by sending out lecturers, but they, as a rule, depend on private breeders for all their experience; their time is so much taken up in answering letters, writing articles, etc., that their own personal experience is limited. What they do learn is by observation, and that often is a delusion, as they forget to allow for the man, the climate, and the difference in persons. Poultry experts are needed, and, with tact, they do a lot of good, as new beginners are overwhelmed with awe on conversing with a Government Poultry Expert; they take in his advice as a child, and if it is a failure their faith in the human race is shattered, and what might have been a financial success is a monument of disaster.

Poultry experts want to be very careful of the advice tended; but here, again, they are not responsible for the versatilities of fortune or the failings of mankind, nor are they phrenologists and able to read characters.

Many a man would be a genuine success if we could only transmogrify some of his discrepancies, or some trait in his individuality, that overrides his good points, but the poultry expert is not responsible for hereditary weaknesses transmitted as one of the burdens for the particular individual to carry through life. Poultry experts have enough burdens of their own to carry, but they are generally civil, obliging and courteous, and give all the advice they know to the best of their ability.

It is not wise to take the reports of beginners in the utility world of their balance sheets, as their enthusiasm and imagination are lurid while things are successful through new ground and smiles of fortune, as those enthusiasts who kick up such a dust fall as quickly, or often quicker, than they rise. The bumpy road at starting, the little shocks to the nervous system, with the gradual smoothing-out process, generally produces the successful expert, or poultry farmer, when the others are wailing and clamouring about the disasters in the poultry world.

Which is the best breed? is often asked. It all depends on the climate, your desires and your personality. Generally the best breed is a cross between cleanliness and rearing.

Each individual breed has its own charms and fascinations,

while some breeders would have the lot. Bantams, to children, are always an attraction, and they have many admirers in the adult world, and their cockiness and grotesque mannerisms are always a pleasure.

Some breeds are purely fancy ornaments, but they will pay for their feed, and all admirers of bird life are not after profit. The hobbyist has more real pleasure out of his particular few than the utility man has out of his hundreds.

Let each particular individual make his choice; we want variety and versatility in the poultry world, not mere machines enclosed with feathers, forced at high pressure to shell out their produce, nor do we want to encourage squatters. Each breed chosen can be worked up by the articles written in this book on selection and scientific breeding; that will give you a profitable breed of any variety. Use your own brains, select the breed or breeds you fancy, cater for its deficiencies in egg yield or feathering, and you will have personal gratification on your accomplishments.

In some of my passages I have repeated the matter and phraseology, but the repetition is for your benefit, as I have only used it when it is of particular benefit to beginners.

It is necessary to repeat certain passages, certain methods, and certain conditions if success is wanted, as the repetition will warn the prospective starter that they are the pitfalls to be avoided. I have tried to give a plain, unvarnished statement of the possible chances of success on a poultry farm, and although I may be accused of egotism in saying so, I do think that readers who peruse this work will admit that no other book published contains so much versatility. I have not expounded or sermonised on any particular subject, but have given a condensed outline of up-to-date poultry methods unsophisticated, and the whole of the articles are for the amelioration of poultry culture.

I have travelled round the world twice and talked with all manner of poultry fanciers, and the interchange of ideas is concentrated in some of my articles. The general body of breeders are vivacious. I found very few atrabilious, but ever ready to agree on the charms of the various awakenings in store for breeders. The description of breeds is limited, for there are so many breeds; it would take a book to properly diagnose each breed for structure and feathering. Each have their own particular charm and fancy. My main foundation in this book is its originality of breeding methods, and the originality of various profitable ways in both utility and fancy, and the originality of details. Criticism in some quarters may be cynical, but the broad-minded breeders in both the utility and fancy world will, I think, appreciate the translucent light shown through the book, and which I had kept locked up before.

I have not treated any article in a sensational manner, but given as far as possible an approximate estimation of probable profits and losses. I have not shown any viridity that I am aware

of in any article, as, almost without exception, it is my own practical experience. Times now are so strenuous in all businesses and modes of obtaining a living that the ordinary books of poultry culture are twenty years behind, and their ideas are prehistoric in the keeping of poultry or ducks as a business proposition.

The breeding months of different countries and localities vary, and readers will have to work out their seasons for breeding, etc., to suit the class of country in which they are residing.

Even in the northern parts of Australia breeders in Queensland are operating in spring six weeks before breeders in Victoria. The same conditions prevail in New Zealand. This is a simple problem to work out, and it will not require much waste of brain power to find the commencement of spring, approximately, as in some years weather conditions are fickle.

In conclusion, it would be unpardonable of me if I omitted to thank all my advertisers and supporters who have helped me with their patronage. I certainly cover a wide circumlocution of countries in my supporters, embracing two continents—Europe, and Australia; and it shows the wonderful interest taken in poultry, and the power of the Press all over the world, when I, an Australian, can secure the confidence of English and New Zealand breeders.

I certainly hope this work of mine will meet with the approval of breeders and the public, and that the poultry enthusiasts will be able to see why they have failed and the brilliant openings in new channels I have introduced.

GEORGE WOODWARD.

Ballarat, Victoria, Australia.

Locality and Ground.

CHICKENS and birds can be reared more or less successfully anywhere if your system is right, plus rats, tick, or other vermin.

To the ordinary householder the enclosed yard is generally suitable for hatching and rearing all the chickens he requires, and a small yard well looked after is far and away better than two or three acres of ground without proper management. It is a sort of disease or earth hunger that is prevalent in the human race, as very rarely anyone is satisfied with his own little or big plot. We are always looking over the neighbour's fences—I mean all those who are interested in breeding live stock of any description—but a limited space may be your success, the larger area your undoing. To all those who intend starting poultry seriously as a business and living proposition, selection of ground and locality are the big foundation for success, not in keeping poultry, as on the intensive system ground or locality is immaterial.

The rearing of chickens is the problem, and for success in breeding in large numbers year after year, and if suitable soil is not chosen, then you have only a certain lease of life on your poultry farm. Whether you use the extensive or intensive system, the actual breeding of birds and chickens must be done under natural conditions. I know plenty of keen poultry breeders who hatch and rear plenty of chickens from confined breeding pens, but then they attend to every detail. The great stumbling block in rearing from confined birds is breeding from matured birds that are allowed to get more or less fat internally through the moulting period, but birds bred and reared properly from breeding pens kept on the intensive system will also in their turn act accordingly. It is very rarely the fault of the birds; the owner is the man behind. Care must be taken, more particularly in utility breeds, to feed ligbtly and give extra scratching if you want them as breeders in their second and third years.

Even in extensive keeping of poultry, birds for mating the second year with any certainty of success want special treatment. Shut them off by themselves, and feed on a mixture that will not encourage internal fat, as once you have your birds in this condition it is almost the impossibility of the impossible to reduce it to normal conditions again. Ground with a sandy subsoil, or that used for vegetable gardens, is generally the best procurable, providing it is well drained and has shelter in some form away from the prevailing winds.

Cold and rain are not a serious drawback to fowls. They generally produce strongly constitutioned stock. The birds may

take a little longer to mature, but they are all the better for it afterwards. But wind is the great enemy of all bird life, more especially in the early spring mornings, as a chill then effects the birds' growth all the day, if not for days. Chicken runs and houses will have to be provided in large farm or movable colony houses, but this is a matter for your own ideas, as rarely do we see two poultry farms laid out alike, and I have never yet come across a breeder who, if he was planning out his farm again, would not have some drastic alteration. My advice in this respect is to have a week's holiday, and go and view the yards of the most successful breeders. For the ordinary suburban householder the following plan will be found useful, as these yards, if managed according to directions, never become tainted or unfit for breeding on, and that is a big consideration.

Divide whatever ground you have into three distinct blocks by wire netting, and, if possible, boarded up two feet high with the wire fixed on top. Have one yard with good, hard, clean ground; the house will be built in this yard. This yard should be swept every day with a good yard broom, and all droppings removed. The nests, dust bath, water, and shade should be provided here. The water must be kept in the shade, using earthenware vessels if possible. Sacks for feeding the "mash" on should be always on hand, but they must be picked up and shaken as soon as the meal is finished.

The second division of the yard should be kept covered with litter, consisting chiefly of horse manure, care being taken that it has come from a clean place, as some people are in the habit of throwing all sorts of disease-bearing substances on manure heaps. This must be replenished about three times a month, and the whole lot removed when necessary. This is the main exercising yard for the fowls, and all grain feed should be fed here, and shade should also, if possible, be provided. The litter is to be always kept slightly damp, especially during the summer, to save any unnecessary dust, and to make better scratching material. It is surprising the number of birds and chickens that can be reared on ground laid out on these lines, costing the minimum amount of labour, and presenting a place that always looks clean, neat, and with the general look of a healthy poultry yard.

The third part should be dug up, manured, and sown—the one half with prairie grass, the other half in rape. Both of these are ideal green foods for poultry, and afford considerable nourishment. If your yard is very small, you could make a frame of wood, four to six inches high, and stretch netting across so that the birds could pick the grass without scratching the bed all to pieces.

In the event of you becoming overcrowded during the hatching of chickens, you could utilise the grass yard in the same manner as the scratching yard. For three months of the year the best plan is to run your cockerels in one and pullets and hens in the other. You will, of course, require to buy green feed during the temporary

occupation of your garden, which must be immediately replanted when your cockerels are sold or removed.

With a yard laid out and managed on this system, the style of soil required is immaterial, as either clay or sandy soil would be suitable, only that if sandy soil your inner yard should be asphalted or hardened in some manner, to enable you to sweep it clean, as advised, every day. The birds would be turned into their garden for half-an-hour each day. The size of block to be divided would be thirty by sixty, or twenty by sixty, as the case may be.

After you have finished hatching and rearing, you will regrade your breeding pens for the following year, in the meantime you will remove all the scratching litter, to avoid the winter rains on it, as unless it is covered over during the winter the litter only becomes a hinderance, and no use for your fowls.

Personally, I think, for all suburban yards, the intensive method of keeping fowls is best, providing they are attended to, but if you are not in a position to look after them, or lack the necessary enthusiasm to feed them on a detailed menu, then the birds had better have a reasonable chance to shift for themselves.

At five months old for light breeds, and six months for utility, birds are ready to be shifted into their intensive quarters, as they should become accustomed to their new conditions before they start to lay, otherwise, if they were just on laying, the new *régime* would very likely throw them into moult.

Poultry Houses.

POULTRY houses are legion in shape, size, etc. Nearly all the ordinary backyarder or suburban householder have a sort of lean-to, made from a dividing fence or wall, which is good enough for fowls in their estimation.

Certainly it is generally provided with plenty of ventilation, and the roosts fixed into the sides of houses as passage ways for lice and vermin into the cracks of walls and fence. New regulations are now being introduced into the suburban areas of our principal cities, and in future no fowlhouse will be allowed within 50 feet of the back door of the house, and also 5 feet away from dividing fence. This will mean that about 30 per cent. of poultry keepers will be compelled to dispose of their fowls, or remove to places that have sufficient room to comply with regulations.

In Australia the principal timber used for houses in backyards is "palings," but it is penny wise, as they crack and decay quickly. The cracks are a veritable trap for roup. An open door is a

current of air, but a crack causes a draught, generally on the eye of a bird, and then poultry keeping is a failure.

Build all houses out of iron or weather-board. These only cost 50 per cent. more, but they only depreciate 20 per cent. in value if looked after, while palings are a dead loss if you have to remove them.

Your best plan of operations is to have a few trips round some of the prominent poultry yards, and study their style of houses and fittings, as in every State and district all have some peculiarity from one another. Always some details are required in one district that are unnecessary in another, and then housing, etc. depends whether you will operate on free range or the intensive system, or a bit of both.

Personally, I prefer the intensive system for cottagers and backyarders, and a house 9 by 5 is big enough for half a dozen fowls, of 12 by 8 for twenty. The floor wants to be solid, so that they cannot scratch it up. Asphalte, concrete, or hard clay are recommended, with the floor raised six inches above outside level.

If it is not convenient to cart soil to build up the height, then dig a hole in front of the house, and level up that way. This can easily be filled up after by rubbish.

The height of house should be according to yours, as it is preferable to be able to stand up without bumping your head, and save swear words.

The height of roosts is better about 4 feet, or according to height of house. I find that low perches, generally recommended, are a fallacy, so use your own judgment, according to wind and height of house. Fowls do not hurt their feet flying down if they have sufficient room to come down in a proper manner. Fowls prefer to be up a little, especially the non-sitting breeds. Bumble-foot, I find, is not caused by flying from a height, unless under awkward predicaments, but is a hereditary weakness, similar to bunion taint in the human race. It often comes on birds that never fly from a perch, or without any knocks, but if the complaint is hereditary a knock will develop it quickly, more so in male birds.

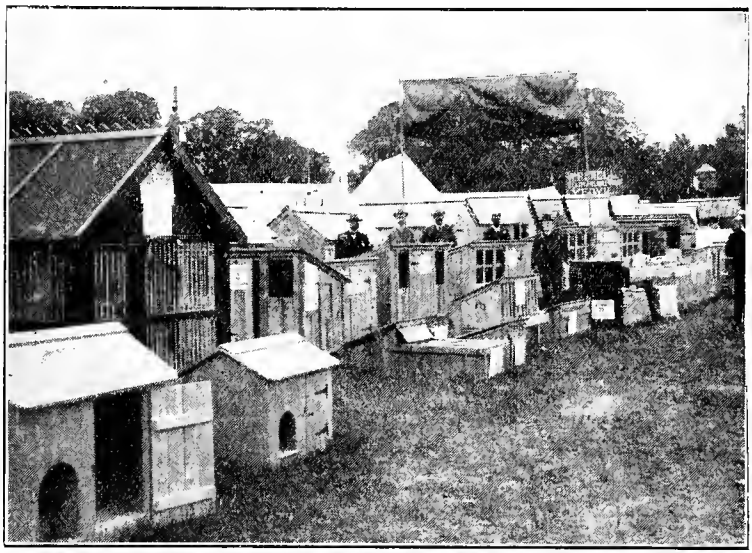
The roosts must not touch the sides of the houses or walls, unless you are a methodical person of regular habits, but even to these persons it is best to be on the safe side and keep the perches away. By doing so, lime-washing the inside of houses, unless for effect or sentiment, is avoided. My places have never seen a lime-wash brush or any other disinfectant other than a spray of emulsion made up of soft soap and kerosene, or Little's Phenyl, the latter preferable. I certainly like to see houses kept painted outside, roof and all, but, unless for effect in the intensive system, there is no need to do it inside.

The nests want to be movable, never fixtures, and they require to be kept clean, in fact, more so than the roosts,

especially if sitting breeds are about and eggs get broken, the nest will harbour lice very quickly, and if your attention is satisfied with its outside appearance, the inside may be swarming. All nests should have a little sweeping of tobacco dust, obtainable very cheap from tobacco factories, or some of the well-known insect powders, under the nesting.

A fowl's nest is like your own bath tub, and should be carefully overhauled at least once a week in summer, and once a fortnight in winter.

I prefer seaweed for nests in fowlhouses. Pine leaves, dry grass, or oregon shavings are also useful.



VARIOUS STYLES OF HOUSES.

Mr. Hebditch, Mr. Manning and Author in background.

Do not use ladder perches, as fowls are like ambitious men. They want to get to the top, and the scrambling for position may be exercise for the stronger ones, but it upsets the nerves of the weak. The house should face the morning sun, and away from the cold winds. They should be set at an angle as no wind blows direct north or south, east or west, except when turning round, although a chain of hills or mountains will deflect the course of wind. For example, in the southern districts of Victoria, Australia, we never have three north-east winds a year, and so if you face your houses north-east you avoid the wind, and catch the first gleam of morning sun in winter right into the house. All

winds tend to blow inland from the sea, or, I should say, are more prevalent.

In England the houses should face south-east, but in any case, no matter in what part of the world you live in, let the houses get the morning sun.

Fowls cannot stand wind if you want egg records. They can stand any amount of rain, but winds curl their energies up, and their ovaries become frozen until the weather moderates.

For tick-infested areas, such as exist in South Australia, Queensland, Western Australia, and parts of New South Wales, tick-proof houses are used, and, I presume, also in South Africa.

These houses are constructed of galvanised iron, with the iron inside and the framework outside, although there is hardly any necessity for this if lice and vermin-proof perches are used. Many forms of lice-proof perches are procurable. The cups holding the perches have some fluid or other in to destroy lice and vermin, but I find a mixture of tar and raw linseed oil the best trap. Paint this once a week in summer, once a fortnight in winter, under where the perch rests, and it engulfs all vermin. You have to put it on underneath, and only a streak is wanted an inch wide. The fowls will not get it on them, and a small brush and pot of mixture quickly do the trick, beside, it's a regular proceeding, and great is the power of "habit." Take away the "h," and you have "abit" left; take away the "a," and you have "bit" left; take away the "b," and you have "it" left, and habit is one of the successful fishing-rods of poultry culture.

In some districts of Australia along the seashore, where the trees are so thick that they could be used for houses, the Mallee districts, except in open country, is suitable, and in special parts of all the colonies there is plenty of shelter, good ground, and suitable trees. Using the trees thus saves a lot of time, and the egg yield need not be so high to attain the same profits.

It perhaps sounds lazy to recommend tree shelter for poultry, but in the places I have mentioned there are no cold winds, frost, or snow, and so for a number of reasons the birds are healthier in the open, while your time is better employed in growing green feed of all descriptions.

Any work that can be eliminated is so much waste energy saved, and if you can save other work that will keep your fowls in better health and give you better results, I am only directing one form of labour to a more congenial one than cleaning out fowl-houses, and the profits will also be better.

The profits are not built upon the returns from fowls solely, but on outlay and labour saving. Labour-saving devices are in use on some plants, such as hoppers for holding grain fixed on the roof. By pulling a lever all the fowls can be fed at one time in each house. The wheat or whatever form of grain used in falling strikes a tin disc, perforated with holes, which scatters the grain in the litter. The hoppers are worked on the same principle as the

old-time powder flask. Against this labour-saving method is the quantity of grain used would be uniform, and fowls have not a uniform appetite, and you would require to go in and bury the grain after it fell, as unless fresh and very loose scratching material is used the fowls soon level it down, and the grain would simply fall, and no work be provided for them in picking it up.

The endless roller system for passing through houses in the form of dropping board to catch fowl manure is certainly a labour-saving device, but the days of keeping only from ten to twenty fowls in one house are numbered for utility purposes, and the continuous roller dropping board is only suitable for a house containing from ten to twenty pens in a continuous line.

Several photos of houses in this book are up-to-date, whether for intensive or extensive poultry culture, and there is little that can be improved upon. In the cold districts of America curtain-fronted houses are in vogue, and the walls and roofs are double, but over-heating is to be avoided, and if glass is used in any quantities, then the ventilation will have to be extra good. The cost of houses is generally worked out at so much per bird. Anything over 5s. is too much for utility purposes, except in cold districts.

The Modern Spider's Web Poultry House.

I HAVE much pleasure in introducing my model poultry house, to be used either as a breeding house or for utility purposes under the intensive or extensive system.

The system is concentrated, and a great saving of labour effected over any other style of house. The general rooms for foods, etc. could either be built round or square, the size of course depending on the number of birds you intend operating with, but I should recommend anything from 16 feet to 24 feet in diameter.

The pathway should be from 4 to 5 feet wide, or wider if a pony cart was wanted to bring in produce, etc. The circular house can be made the depth required for the number of fowls to be kept. The scratching shed and house combined, fitted with dropping boards, the best system, no matter whether you are under intensive or extensive method. Ventilation for your country and locality would have to be introduced, but there are plenty of designs that could be adopted. In Australia plenty of ventilation is necessary, but it wants to be more under control in places like England. The water vessels would be filled from one pipe, working the lot from one main cock, or a V-shaped carrier with cleats at every pen introduced.

The nests could be under the water pipes, and eggs gathered from the pathway. Grit boxes and feeding troughs should also be next the pathway, the feeding troughs could be worked on hinges for mash feed or the top of nest boxes used for it.

The fowls should obtain the food through platted bars, the grain feed would of course be buried in litter. Sparrowproof netting should be used, and if ground vermin is prevalent a concrete floor made to stop their depredations. The whole of it could be under one roof on the bungalow pattern, or the offices made separate, fowlhouses following suit. The one great thing to avoid would be an outbreak of fire in the incubating room, so that would have to be made fireproof or else the incubators worked in an isolated spot. There is little danger with modern incubators, but a little caution will not be amiss, as some men are apt to be careless at times.

If for the intensive system in cold countries I should prefer it roofed all over, or in wet districts, but it is optional, you will follow your own inclination. In Australia I prefer the open pathway, otherwise the amount of glass required would overheat the place in the summer time. The runs could be used for the birds, or as chicken runs, if you are working under the intensive system.

The size of the square will depend on the number of birds you are working with, and the amount of ground you have, but any ordinary individual can see at a glance, that in these strenuous times the saving of labour effected in this style of house would result in increased profits.

The birds would be well under control, and as your general offices are centered you could keep them under constant scrutiny for sickness, etc., and remove all birds ailing immediately to an isolated hospital.

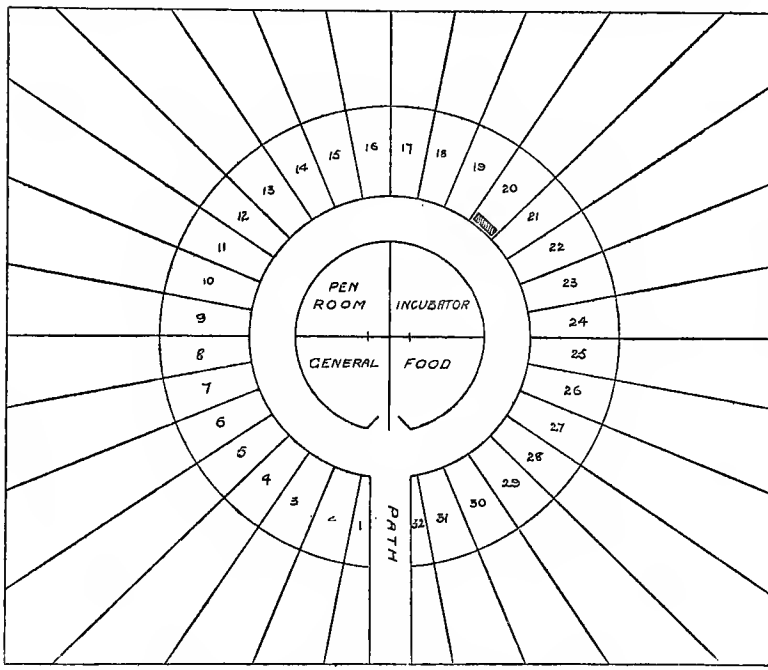
This is also a good style of house for pigeon rearing, or in fact any place where breeding operations are carried on in numbers. By studying it carefully, you can introduce your own details, still I think those as suggested are quite sufficient and inexpensive.

Men's rooms could be put in an upper story, or if one wants embellishments a sort of look-out built on top. The divisions could be boarded up 2 feet high if you intend using the pens for breeding, if not one foot would do just to keep litter separate, and to fasten the wire netting, but this also is a matter of your requirements.

A lesser number of pens can be used and the yards to follow suit. There are plenty of ways of altering details without effecting the general construction.

Choosing Stock.

THE selection of stock is often a matter of sentiment, and it depends what breed takes your fancy at the psychological moment when attending shows, unless you have made up your mind definitely beforehand. There are several ways of choosing stock. 1. The new beginner, who is impregnated with show fever, will make his choice then, but before six months are



THE SPIDER WEB POULTRY HOUSE. (See page 21.)

over he wants all the varieties, so adds four or five others to try and gratify his malady. 2. The utility man, who wants eggs as a commercial pursuit, is guided by the breeds winning in the competitions. 3. The backyarder and householder, who has a cousin or brother-in-law who gives him the encouragement and the details, with probably a setting of eggs thrown in. 4. The farmer who rarely knows what he wants, but generally finishes up by bartering a couple of his male birds for a couple of other degenerates.

Choosing stock as a business proposition is a matter of locality

and condition. In warm, temperate climates, if using incubators, the non-sitting breeds are the best for egg purposes only, but in colder districts any of the utility breeds tested for egg laying will give good results as egg layers.

Orpingtons, Rocks, Wyandottes, Langshans, Faverolles, Sussex and Rhode Island Reds are all good for egg laying if worked on my systematic lines, while farmers should use nothing else, as all these breeds hatch their own chickens.

Very few farmers have time for incubators and brooders, thus the non-sitting breeds should be avoided, unless worked in with one of the utility breeds, choosing birds of similar colour as far as possible.

For export and market purposes a number use the cross of Indian Game, or Old English, or utility breeds to procure breast meat, but, personally, I cannot recommend breeding for export or market, at least in Australia, if this is your object, as not sufficient profit is to be made out of market poultry for the time and labour involved unless worked in conjunction with eggs. At certain times of the year market poultry will show a good profit over feed in Australia; birds matched in late winter, and sold before six months old in the local markets show a profit of from 1/- to 2/- per bird, but the sale is limited, as given any surplus prices would drop. Market poultry pays very well for farmers, almost any time of the year, as the birds are fed on waste products, and often scratch for their own living amongst the stacks, and although the prices may be low when they send their birds in, as generally their chickens are hatched late, still it is all grist to the mill, whereas if they had to buy food the whole transaction would be a financial loss. Farmers could secure a better average price for birds if they kept a uniform coloured flock of poultry, instead of a heterogeneous mixture of nondescripts.

If breeders want to rear poultry for table purposes and show combined, then they require to test the ground. If it has a superabundance of lime, I should advise them to avoid yellow-legged fowls, and to take white-legged birds for preference, such as the White or Buff Orpington, Faverolles or Sussex, as they will not be hampered by the legs turning white.

In a number of localities in Australia, the country known as Mallee, and the crabholey land of the wheat belts, the breeding of yellow-legged fowls is an impossibility—that is, to retain their colour. Dorkings do very well on limestone ground, but the ideal is sandy subsoil.

The Asiatic breeds eat better at two and three years old, when served up on the table, than other breeds. The English taste is supposed to be a white-legged fowl, but it is a matter of sentiment. The Americans are supposed to have a craving for yellow-legged fowl, but with the marvellous popularity of the Orpington in America, the colour of leg, whether White, Yellow or Black, will be prehistoric tradition.

No one eats the legs, so why should the colour of horn effect the appetite? Certainly most yellow-legged fowls have yellow skin, but a big proportion have white skin and flesh, notably the Wyandotte, while the Plymouth Rock has a yellow flesh.

I know buyers in the Australian market never study leg colour, but the quantity of meat on breast and their age.

For egg production solely in warm climates Minorcas and Andalusians lay the largest eggs, with Spanish in the same category; a cross between Black Hamburgs and Minorcas would be ideal for colour and size of eggs, but it is best to stick to the popular pure breeds of the country, as the surplus will give you extra profits over cross-breds.

A great number of farmers in Australia make all their household expenses out of fowls. The women give them a certain amount of attention, but not much, they may feed a bit extra in the spring, while the chicks are about, but the majority of the farmers do not trouble, except to clean out the fowl-houses three or four times a year. I have only been on two farms where they had pure bred fowls of one breed, and they looked splendid. Generally speaking, farmers nowadays have an odd sprinkling of pure breeds, and often cross-breds; the real mongrel fowl, as we know it, is rapidly becoming extinct. The farmers' wives of England, I understand, do breed a better class of poultry collectively, and they often breed pure breeds for some of the large exhibitors, so breed is no object to them. I should advise all farmers to try sending fowls to market, to test pure breeds against mongrels, and prove for themselves. If sent in the same condition and age, and all uniform in colour, you will find pure breeds bring 1/- a head more at any time of the year. As they will have cost no more to feed, nor received extra attention, the extra money received is all profit.

The cost of outlay, either for a trio of birds or a couple of settings of eggs, is the only outlay, the vigour, stamina and productiveness are far ahead of nondescripts; in fact, any person who likes uniform colouring and shape should help the other units of the household by having an attractive fowl yard. The self-coloured breeds are the best for farmers, Black or White, although Rocks, Wyandottes, Faverolles, Rhode Island Reds and Sussex are all good. The breeds known as the "double-mating" varieties, such as Silver Wyandottes, require scientific and technical breeding to acquire any uniform success in markings. This breed is a wonderful combination of beauty, and a fascinating fowl to skilled breeders to breed to an ideal, but the vagaries of their breeding would not suit the ordinary farmer, unless he was keen on poultry.

Choose your fancy, studying points, colour, and your requirements; make up your mind definitely for not more than two breeds (one is preferable on a farm) of the utility breeds, that is which will

set and hatch their own chicks. The poultry farmer will depend on incubators no matter what breed, while the backyarder and suburban will buy day-old chicks to keep up his supply for egg laying if he has no room to breed.

Incubators.

WE will first of all glance at some of the advantages of Incubators. It is an old saying that "there's nothing new under the sun," and this applies to incubators. Hundreds of years ago the hatching of poultry by artificial means was carried on in Egypt, but it is only during the past twenty-five years that the incubator has reached anything near perfection.

To get healthy chicks or ducklings from fresh fertile eggs, three things are absolutely necessary, viz. heat, air, and moisture. These elements must, of course, be applied in proper quantities, and the incubator that can do this with the least trouble is the machine that is required.

The first claim for an incubator is the simplicity of working, and the small amount of personal supervision needed. After the eggs are introduced, the attendant's duties are so light and easy that they may be carried out by an intelligent child, and if the regular attendant be absent for a day or two, it can be looked after by anyone who has seen the duties once performed.

Larger numbers of chickens can be obtained by incubators at any season of the year, although I do not personally recommend hatching during the very hot months, say January and February. You will thus see it is quite possible to hatch your birds so as to insure a supply of eggs all the year round.

Chickens reared artificially thrive better and are more independent than those reared in the natural way. They are less liable to accident, as a hen in quest of food is very careless, and often leads her brood into danger, and very frequently they overtax the weak chicks, they not being able to keep pace with her; thus only the strong ones survive. Another advantage, incubator chicks start life absolutely free from vermin; there are no hen lice in an incubator. Ninety per cent. of sitting hens leave the nest with their brood infested with vermin, and the little chicks are barely dry before they are in a like condition. This alone retards the growth of the young birds to an enormous extent.

To poultry-keepers who keep only the non-sitting breeds, the incubator is indispensable. Then again, thin-shelled eggs can be used in an incubator without fear of being broken, as they are more easily pierced by the chicks when hatching.

And lastly, the feeding of a large brood by hand, say 50 to 100, can be done more economically, and with far less labour than the feeding of half the number with hens. The special food "tit-bits" that we supply to a brood of chicks is usually gobbled up by the hen herself, or we have to watch every time we feed to prevent the older fowls from intruding.

Incubators, without doubt, have come to stay, and are now supplanting the hen everywhere, and if profitable poultry farming is to be carried on, the incubator is indispensable.

Having mentioned some of the advantages of artificial incubation, we will glance at the old natural method.

The Disadvantages of the Hens.

Broody hens often give trouble by leaving their eggs for hours at a time, thus endangering the health of the unhatched chicks. Not only does the long exposure of the eggs weaken the future chickens, but the time of hatching is prolonged. When a hen enters her nest she often accidentally rolls one or more of the eggs in a corner, and there it lies until perhaps quite cold, and if not noticed by the attendant and replaced that egg is lost. Often the shells of eggs are very thin, and are consequently broken by the hen, and you all know what a deplorable mess this makes of the nest; so much so that it is made so uncomfortable for the hen that she finally deserts it and the eggs are lost. Then again, when a hen wants to sit she often chooses a place where she has been accustomed to lay and will not sit anywhere else. With the incubator these evils do not exist. All that is required is to keep the lamp trimmed and supplied with kerosene, the process then goes on constantly, at a regular heat, and the whole time needed for attention should not exceed ten minutes daily. This is why the chicks hatch out in an incubator quicker than under a hen. If her family appear on the twentieth day she has done well, but in a good incubator chicks usually are all out on the nineteenth day, sometimes sooner. I have had strong healthy ducklings hatched on the twenty-third day.

A Few Special Points on Incubators.

Set the machine in a place free from draughts and vibration, and away from any wall that has the sun playing on it. An asphalt or cement floor is best, but do not have a damp earth floor, as that may foster mouldy germs. Have all eggs as nearly equal in size as possible. It is even better to keep the different colours separate. Study your machine and the surroundings; it will work and regulate, but has no brains.

Moisture is a problem which depends on the season, but generally more moisture is required in late spring than in winter. If you are working your incubator at 1,500 feet above sea level or over, you are in a drier atmosphere, notwithstanding that your rainfall is greater than other districts. If working over 2,000 feet level it is best to put the moisture in at the start in a hydro machine,

taking it away about five or six days before hatching. This is the same principle as a hen sitting in spring; you set her on moist ground and she draws it all away in about twelve day's time. For some districts hydro machines need no water.

Hot-air machines, that are non-moisture machines, in several districts often require the floor sprinkling, or a wet towel hung up in the room. Try your machine different ways, with moisture, without, and according to the ordinary instructions sent with machine—the latter first.

I have found very little difference between the hydro and the hot-air machine in Australia.

If your chicks are not all out by the twenty-first day your nest was too low.

Do not hatch ducklings and chickens together; it is not satisfactory, but there are exceptions.

Every person should possess one incubator, as oftentimes a bird will leave the eggs and then, where are you? I would advise sceptical people to buy a small incubator and use "loving broodies" for the first twelve or fourteen days; the eggs can then be placed in the machine and no difficulty will be experienced in hatching, as the critical period is past. You can then set your hen again to work a doubler, and, with good feed, using maize, and dusting the nests, a trebler. Your machine may have too much air or not enough. Be regular in turning the eggs and other work in connection with the machine. If your chicks begin to hatch on the eighteenth day you have had too much heat. Study your air-cell indicator, and try a couple of eggs in the water-test five days before hatching, using the water at blood heat. Close the machine up on the eighteenth day, and do not open it till the hatch is all off. Don't worry about the chicks, they can live seventy-two hours without food. As the hatch progresses more heat is generated in the machine, so allow for this.

If you set twenty hens you will be lucky to hatch 120 chicks—50 per cent. An incubator worked with proper eggs will always beat this.

In the majority of failures you can blame the eggs or yourself, not the incubator. An incubator should not be entrusted to a child or boy, as they think more of playing tops than working an incubator in a proper manner. Study the directions sent with the machine. To prevent having the eggs too stale, place them in the machine each morning they are laid, keeping the moisture going all the time; this has given good results. Keep brown eggs altogether in one machine if possible; they need more moisture than white eggs as their shells are thicker.

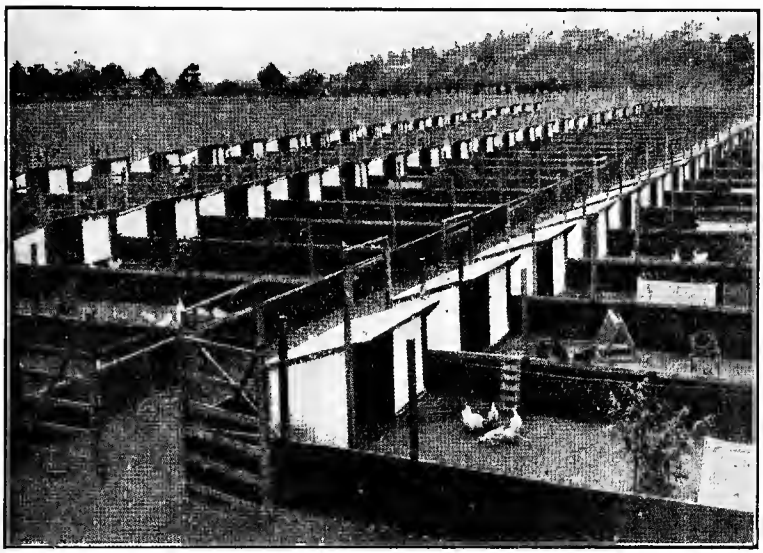
If moisture keeps forming on the inside of the glazed door, it shows that the temperature in the incubator room is low. Hang a thickness of felt in front of glass door to prevent radiation, it can easily be lifted when you desire to see inside.

There is no necessity to turn the eggs completely round, just

shift them about; if eggs are not moved, the embryo floating on the highest part of the yolk would, if left too long in one position, push aside the thin layer of albumen or white and stick to shell.

When putting eggs into the machine stand them almost perpendicularly on small end of egg, as you can generally put one-fifth more eggs in most machines by this manner; just give the eggs a slight cant, the eggs contract in size as they are incubated, and they will gradually come down on their sides, and the unfertiles tested on fourth or fifth day will give you plenty of room. The more eggs you can place in machine the more money you save.

Lamps often smoke; causes, imperfectly refined oil, or oil of



VICTORIA (AUSTRALIA) COMPETITION PENS.: EXTENSIVE PRINCIPLE.

poor quality will smoke under the best of conditions.

Wicks should be changed every hatch, if used too long they lose their porosity, become clogged, thus preventing oil from rising by "capillary attraction," thus the wick only burns instead of the oil.

The wick should also fit closely in the tube, otherwise it gets vaporized. Kerosene may escape by the side of wick and catch fire, with a calamity of disaster ahead.

The cause of chicks panting heavily on top of eggs is too much heat; as they become stronger coming towards the light, and drop through into the egg drawer, the air is lower in temperature and purer, and they breathe normally. No cause for alarm.

Lamps can be cleaned with a strong solution of washing soda, and the mica as well.

Cause of heat not coming up to requirements, generally through certain amount of soot in machines or bad oil; in small machines sometimes the heat will not rise to 103 unless eggs are put in to help work up the heat.

Some common wicks draw oil up more rapidly than it can be consumed, thus the machine smokes.

Asbestos wicks are preferable, and as it is incombustible the wick itself will not burn once the oil gets too low in tank or runs out.

The charred end of ordinary wick stops and clogs the flow of oil, and they require trimming once if not more every twelve hours, whereas asbestos wicks, although charred, remains porous and does not check the supply of oil.

What is known as the Silver burner in lamps is the best in use in Australia. It will burn an almost imperceptible flame without smoking, and is invaluable in brooders.

Often the humidity of atmosphere effects the working of machine. For instance, if your incubator room is at 50 or 60 the cool air drawn into machine contains so much moisture, which evaporates quickly, as there is a difference of 50 degrees between the inside and outside of machine, while often in the spring in Australia the incubator room will run to 80 degrees, and the atmosphere is full of humidity, especially in elevated districts, and this is the reason why very little moisture is required.

If different strains of eggs are put in incubator, and you require to keep them separate, use thicknesses of cardboard or boxes of cardboard without tops, or special frames made of fine netting for the purpose.

Eggs can be put in machines at different times, but always warm up the new eggs by your hands, in the oven, or putting under a broody fowl. Do not put cold eggs in a machine along with other eggs. Remember, if you have eggs in machine a fortnight old, and the thermometer is resting where they are, and shows 103 degrees, your fresh eggs will only be 101, as the animal heat in the eggs that have been incubated for a fortnight makes the difference.

Put the last eggs in centre of machine, as the heat there is always more or less higher in temperature than in corners. Use the thermometer on fresh eggs up to 102, but here you will have to use your own judgment.

A full machine generates more heat than one half full, but you can hatch either way, by regulating the flame and the damper. An experienced incubator operator rarely wants to look at thermometer after 48 hours. He can tell by the flame of lamp whether things are working right or not.

Chickens often hatch a couple of days over their time, caused by too much cooling or heat at some period of incubation; as a rule, they never do much good in rearing.

If chicks are not all out by the twenty-first day, soak them in warm water 110 degrees for a minute, and prick a hole through large end of shell to give them air, but do no more, otherwise you may kill the chick, but the hole is to supply air, as if the chick pushes its beak through the air chamber, without breaking the shell, and no air was obtainable, it would die of suffocation.

Eggs are generally ready for incubation five or six days after the cock has been in pen, and for the same period when taken away.

I have only given general directions. All the different makes of machines have their own little peculiarities, which are generally easily understood.

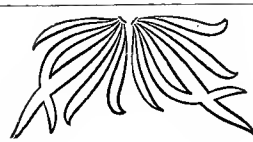
I know some men who never air the eggs, just simply turning the eggs twice a day, who have splendid hatches, and chicks are all out, so they say, on the twentieth day, and often on the nineteenth.

In high altitudes the dampers require to be closed all the time to retain moisture, otherwise the chicks are flooded with too much moisture just as they are ready to hatch. My own incubator experiences is at a 2,000 feet level entirely different to under 1,000 feet level.

Avoid any jarring of incubators, especially from seven to ten days, just as eggs are turning; it does not effect them before or after that period, unless very violent.

Thunder, if powerful enough to rumble and shake the ground on seventh to tenth day, causes disaster; but does not effect the chicks from the fourteenth day to hatching, nor on the first few days mentioned.

There are plenty of good incubators, and all give good results if the fertility of eggs are strong, and the heat is kept uniform. Those that are advertised in this book I have worked and seen worked, with the best of results. The only difference I find is that on a 2,000 feet level the Prairie State of the later pattern gives wonderful results. On average heights, from sea level to 1,000 feet, many other machines are equal.



Setting Hens.

THE setting of hens is a simple matter, if you let them sit in their nest they have been accustomed to lay in, but generally it is not policy to leave them, as the other fowls probably lay in the same nest, so you will require to provide a nest in some other part where the broody will not be disturbed, and where she is under control.

Do not be in a hurry. Let her sit two to three days, by which time she will be properly impregnated in the sitting fever, and if she is quietly moved at night and closed in for twenty-four hours will give you no trouble. Give her a good feed and a drink some time during the day, before you move her to the new quarters.

Do not neglect to close her in for the twenty-four hours, otherwise if she is a fretful bird the new surroundings will make her fidgetty and nervous, and she will eventually decide to quit, but closing her in she has time to see in the semi-gloom that all is peaceful and well.

I prefer setting two hens at one time, especially early in the year, as you can test the eggs; then if the fertility is not strong all the eggs can be given to one, and the other bird reset with a fresh batch of eggs. To test eggs, hold them up between your eye and a lighted candle in the dark, or, better still, use the mirror egg tester. The nests can be fixed up in boxes in the winter, but as the season advances moist sand should be put in the bottom of the box, or the hens set on the ground, with a box only having sides over them. Use dried grass, pine leaves or seaweed for nests, the latter preferred. On no account use the same nest twice for setting, as to your casual observance the nest may look clean and free from lice, but there is sure to be a few in hiding, and with the next broody they multiply greatly, and you will think everything is lovely and clean till you receive a sudden shock and find the hen deserting her nest, or often dead, absolutely crawling alive with vermin.

I have seen fifty hens brooding in one building, with just sufficient light for the hens to have their feed, water and dust bath, and it certainly saves labour, as a look in twice a day to clean out the droppings is all that is necessary. If any hens are fretful they can be closed in and just left off to feed, and closed in again after. The nests require to be made in a hollow, shaped like a saucer, and the hen dusted with insect powder before sitting, and again a couple of days before her hatch is due.

Set one variety of eggs, if possible, under each hen, the mixing of breed is rarely a success for some reason or other in breeding high class birds for show purposes, as different breeds have some peculiarity of mannerisms of feeding that do not give best results if running together.

If the eggs are rather thin shelled, and the hen inclined to be fidgetty just previous to hatching, put a couple of dummy eggs in nest to keep her from setting too close. If hens, "which should be light weights," are set on bantam eggs, dummy eggs should be used as well. A couple of ordinary china eggs I have found best, with the result that every bantam egg hatched was fertile.

Do not bother taking the chicks away from under the hen, but sometimes it is necessary to help chicks out, when through dry atmosphere the chick break through the shell, but cannot get through the skin lining the shell, so they gradually get suffocated. It is therefore always advisable to look as the time for hatching advances. Tampering with chicks that have their beaks showing through shell, with no perceptible movement for release, wants to be done very cautiously, as if any blood is running around the skin it cease at once, and even then the chicks rarely do any good. Kill all weak chicks. No sentiment, please. The moment they are noticed out with them, or they will put you out. Coddle weak chicks, and you cherish disease carriers. The rest you can imagine.

"Darwin's" theory, "the survival of the fittest," is certainly a good maxim to study in chicken culture. The weaklings, even if reared, are wasters in the breeding pen where you breed in quantities.

Often hens will leave a nest, and if this is noticed, and you have incubators working, the eggs can be finished in these, as eggs that have been incubated a fortnight will keep alive for twelve hours and longer in warm weather, and twenty hours on the eighteenth day if deserted by the hen, so do not despair.

Turkeys are grand sitters, and a couple of dozen turkey hens are a valuable asset on a utility farm, as they will set for two or three hatches, and then look for more, only they must be lifted off the nest and fed each day, otherwise some turkeys will never come off to feed, but die on the nest through weakness.

Turkey hens of the common variety can be drugged with wine and be induced to sit at any time. Give a couple of tablespoonfuls of wine, and put her on an enclosed nest of dummy eggs, and so made that she cannot stand up in it. Repeat this for two or three days, and you will generally secure the desired result, if not you can throw her off, as longer confinement is cruelty.

I prefer them on duck eggs, as five turkey hens are as good as a one hundred egg incubator, and they hatch a bigger percentage.

Feed all broodies, hens or turkeys, on maize, if possible; if not obtainable, wheat. On no account use soft food, and no green feed is needed, as having no work to do, it makes them loose in the bowels.

Ducks do sit on their own eggs. Muscovies are grand sitters, and make superb nests, and they should be always used to hatch

their own young, otherwise they fret and mope. Runners do not sit as a rule, unless you let them sneak a nest, then they will, but I prefer turkeys to ducks for their own eggs.

Fireless Brooders.

THE use of the fireless brooder is not by any means a present-day invention, as various forms and substitutes of it have been employed for generations back; only with the march of progress, coupled with the aid of a liberal poultry Press, they have become, shall I say, fashionable. Yes, fashions follow sentimental lines even in poultry—hatching, brooding, rearing, and the latest in fireless brooders is practical and fashionable.

Fireless brooders, although not called by that name, simple common "brooders" have been in use in Australia for twenty years, to my knowledge. It consisted of a box with a skillion roof 9 inches high in front and 4 inches at back, padded all round with rabbit or sheep skin blankets or whatever substance was available. At the back of the brooder a vinegar bottle or a stone affair like a demijohn, holding a quart of water, of course put in hot, was placed last thing at night, and again filled up in the morning; the bottle wrapped in old blanket or some such substance to keep warm.

This was also placed in a shed or warm outbuilding, and moved about according to the tactics of the weather, and thousands of chicks and even turkeys have been reared successfully by this means. While ducklings simply gloried in it, I should have added that the front of the box had a strip of felt hanging the full length and depth of entrance, cut only half through, so the chicks could go in and out at will. A little ventilation was provided at sides close to roof, but not much. Such was the fireless brooder of Australia, used extensively in South Australia and in our Mallee country of Victoria, all of which have mild winters, only on extreme occasions would the temperature drop to zero.

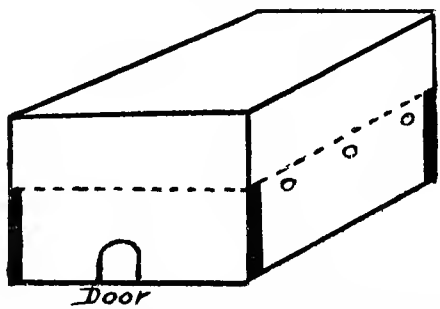
No pretence was made in rearing chicks in thousands in those days, perhaps half-a-dozen of these brooders would be the limit in any one yard, consequently they were not used with any degree of commercialising the industry; it is only during the last five years, owing to the rapid advance of commercial and utility poultry, that fireless brooders have become a household word in the breeding of chickens and the transport of them from one colony to another.

Personally, I do not advocate fireless brooders for commercial poultry in the early months of the year for cold climates, unless you

have an enclosure that is practically a semi-brooder in itself. Climatic changes, if sudden, are apt to bring on diarrhœa, although this is often noticeable in heated brooders; in any case, fireless brooders cannot be used in safety out in the open, unless you are there to watch the weather conditions.

The conditions of working these brooders are simple from the middle of spring and early summer months, if worked under a shed. I have seen thousands of chicks reared in this manner by one man, with only the loss of a few weaklings that were doomed to be useless if they had been reared, a menace and walking disease carrier on any establishment.

The weaklings are easily noticed, ones that possibly have been reared in heated brooders, and who only foster the first disease that came along. It is always a hard proposition with some people of a sentimental nature, the coddling of weaklings. Well, do it, and you will want coddling yourself before many breeding



Dotted line shown inside roof is false roof with flannel tacked on. Pillows stuffed with feathers rest on false roof, which sags just sufficient to touch back of chicks. Air holes are not generally required except in warm districts, as the air escapes through flannel. A circular piece of cardboard is inserted in the door for two or three days, to keep chicks in brooder to accustom them to it.

seasons; your place is a doctor or nurse in a hospital if you are emotional on destroying the life of the weaklings, not on a utility poultry plant. It is silly, as by keeping weaklings, you are catering for disease, and catering for the lingering deaths of all the healthy birds on your place.

So if fireless brooders do bring out the survival of the fittest, then the loss you have sustained in a few can be used as an analogy against the oil in heated brooders.

The best plan to have a fireless brooder working on a utility plant is to have a framework made three feet high, so that all your brooders can be worked without stooping, and if the roof of the shed or outbuilding is only seven feet high, the chicks are nearer the warm atmosphere and away from draught that work through the cracks of doors, floors, etc.

The shed should be well equipped with glass windows facing to catch the morning sun, the runaways from the brooders made from six feet to eight feet long, slope from three feet at the brooders to two feet under the windows, and the ramp or runaway can be continued if the birds are to be run outside, but more often they are kept in till six weeks old, then removed to cool brooders.

The frame of brooder is nine inches high and from sixteen to eighteen inches square. Cleats are put in each corner of hover five inches high, to rest the cover on. Cut a hole about four inches square for the inlet and outlet at bottom, which is draped in felt blanket, and slit up so that the chicks can enter, then inside the corners should be rounded off with veneer wood, so that the hover is more or less circular. Make a frame of wood to fit inside hover to rest on cleats, or the circle. The cleats are really not required if wood is used inside to make the circle, but if cardboard is used the cleats will make it stronger. On to this frame tack a good piece of flannel or flannelette, let it sag in centre so that when in position it is about three inches from floor in middle. No ventilation is needed, it passes away through the flannel; if you think it is required, then it is easy to make provision. This can easily be ascertained, as the chicks will gasp frequently if the place was too hot. A pillow made of flannelette and stuffed lightly with feathers is best, for they give off more heat than wool, cotton or kapok; just make it to fit easily on top of cover on hover, allowing one inch or more play all round, always have an extra one in colder climates, and work the double on zero nights and under.

The chicks crowd and keep continuously trying to get over one another if cold, doing the cake walk all the time, but if all goes well, will nestle easily together. I generally use a circular strip of cardboard in front of outlet the first three days, starting from each side of opening, so that as they come into the doorway they soon find their way in and out. After three days this can be removed, and the chicks can have the use of the whole runaway.

The whole of the top of runaway is covered with inch wire netting, so that they cannot get out or on top of hover. For bedding in hover I use nothing else but pure horse manure dried in oven, then packed in one inch deep, adding a little more each week, replenishing the lot in three weeks. The ammonia in the horse manure kills all the droppings from chickens during that period, and thus labour is saved, and they do splendidly on it In the runaway I use both sand and litter, what we call cocky chaff; it is divided off by a ledge placed across the centre.

The number of chicks that can be placed in this varies from twenty to forty chicks, according to the vagaries of the weather.

The feeding formula is described in a separate article.

Fireless brooders can be made to use outside, and in that case ventilation would have to be provided, and also a cover to go right over the top. A movable runaway would also have to be constructed until the chicks become accustomed to their surroundings.

Fireless brooders are certainly a good stand-by for any poultry breeder, as if only a small lot comes off from the incubator they can be brooded in this manner instead of working a heated brooder of 100-chick capacity. These brooders on a duck farm are invaluable, as in almost any climate they are workable, because ducklings are rarely hatched till middle of spring, and after a fortnight in this brooder they can be transferred outside, using your discretion regarding the weather.

Ducklings want a run out on grass after three days, so that their brooders could be made larger and movable, as ducklings do not crowd and scramble over one another like chickens, but each takes its own space, certainly close together, but not overcrowding. As the construction of these brooders is cheap and are easily made by an unskilled mechanic, they are a wonderful saving in money for oil and apparatus.

The chief points to watch is too much heat or cold and teaching the chicks to enter. See that they do not huddle outside, which they are inclined to do the first day or two. After a feed and scratch they should be induced to enter.

If any become affected by "white diarrhœa," remove them to a special small brooder kept for the purpose. This disease is often caused by a germ, or microbe, that originates in the incubator, so before putting eggs in the machine have it thoroughly disinfected, and as a double preventive use a weak solution of carbon compounds in a saucer from the eighteenth to the twentieth days in the machine, and this will kill all the microbes of this dreaded chicken disease. If horse manure is not obtainable, use peat moss. If any other litter but these are used, it wants cleaning out every three days.

To transfer chicks in cold weather from a temperature of 103 degrees to a fireless brooder is too drastic, unless you can have it in your kitchen or heated room, so it is best to keep the fireless brooder warmed up for three days or more by means of a bottle of hot water or heated brick until they become accustomed to it.

Management of Incubator Chickens.

THE most important requirements of young chickens reared artifically are warmth, cleanliness, fresh air, and judicious feeding.

There are several styles of brooders and brooding houses, but I prefer a brooder inside a brooding house, as after you have dispensed with the heat the brooder can be removed bodily and thoroughly cleaned and disinfected.

A continuous brooder house, worked on the pipe system, and the chicks shifted along each week to other pens with the heaters or pipes gradually rising is adopted on big plants, but even on these I prefer movable brooders, as some faulty detail in cleaning pipe brooder houses will cause loss; disinfectant and sunlight can be more drastically used on movable brooders. I like all apparatus movable on a poultry plant, the only fixtures should be the houses. I would even prefer these to be movable, but on large plants that is impossible.

In temperate climates, where the thermometer rarely falls below 35 degrees in the winter evenings, chicks can be removed from a heated brooder to a fireless brooder after a week. For the first two days a temperature of ninety-five degrees Fah. should be maintained day and night, then drop five degrees each day till sixty-five degrees is reached, then, if the weather and conditions are suitable, they can be transferred to the fireless brooders, and after six weeks to the colony houses. Advantage can be taken of the sunshine; discretion should be used as to when the heat should be increased or diminished. The behaviour of the chicks is the best guide to go by. If they remain too long in the sleeping room more heat is required; but when they seek their mother after plenty of exercise ten to fifteen minutes approximately, it is a good sign all is right.

Too much heat is worse than under heating; strike the happy medium or they will crowd and the survival of the strongest, generally male birds, comes into operation. Fifty chicks is a handy number to have running in one brooder; less is preferable to a larger number.

Wash the brooder out with Little's Phenyle or some other disinfectant at least once a week; limewash is also good.

Keep the bottom of brooder bedded down with dry horse manure, if obtainable, procured fresh if possible; if not on hand, peat moss, or cocky chaff. Chaff cut into three times the ordinary length generally used is known as cocky chaff in Australia—is really only cut straw.

The Feeding. It all depends how you wish to train them on—dry or mash feeding or a mixture of both.

I prefer the mixture, and small grains are thrown in the feeding compartment to cultivate the scratch. If mash is fed, it's better to make it up into the size of golf or cricket balls, it all depends on the number you are feeding, but chickens do enjoy picking mash food made up into a circular form, sufficiently hard to keep it from falling to pieces of its own accord. I don't believe in hard-boiled eggs, preference to be given to raw eggs, especially the yolk, as that is the natural food of young chicks, mixed up with biscuit meal and oatmeal.

Hard-boiled eggs I know are used extensively for young chicks and turkeys; fortunately, Nature counteracts this injudicious feeding, as the chick picks up a tonic in the shape of charcoal, etc., to counteract the indigestible hard-boiled egg, but very often the big losses of incubator chicks, especially those kept indoors for the first six weeks, could be traced to this method of feeding. Feed little and often—every two or three hours. You will have to dip their beaks in the water, just teaching two or three of them, the others will soon learn.

Suspend green feed and pieces of liver so that they have to jump to reach it, exercise is beneficial. After a week, if the weather is suitable, they can be allowed out in the open grass run.

The ordinary feeding of chickens has been given in another article. If chicks are a bit off colour, stop your regular feed and give hot milk and a little bread as a change.

A sprinkling of Manning's Spice is a grand tonic in the hot milk, as it acts directly on the liver and bowels, and these are generally the organs that suffer in bird life brought on by a chill or bad feeding, rarely anything else.

Watch for any cracks in brooders that will allow lamp fumes to penetrate, the slightest one will let in poisonous carbon dioxide gas, which will settle all your chickens.

Make every effort to procure buttermilk for the first two months; try a lot of chickens without, another similar batch with it, and you will be convinced of the difference. I always advise utility poultry farms, surrounded by vegetable gardens, dairies, or slaughter yards, the two former preferred. A raw onion chopped up fine every day for fifty chicks at three weeks old onwards is a wonderful tonic, as an onion contains more medicinal properties than any other vegetable product.

If not using buttermilk after a fortnight old, add 1 lb. of meat meal to 25 lb. of mash. Some chicken preparations sold are with or without meat foods. Meat foods are the great problem on extra large poultry plants. I have seen 450 cockerels running together that had not obtained any meat simultaneously turn and, selecting one of their mates, all attack, and have him down and disembowelled in less than a minute.

Rearing Chicks and Ducklings.

CHICKENS do not require any food for *forty-eight hours* after hatching. If you have hatched them under a hen or are running hens in conjunction with incubators, which some breeders do to save brooders, giving each broody twenty-five chicks, confine the hen so that she does not get out, first dusting her freely with insect powder. The hen should always be confined in a latticed fronted coop, then you can feed the chicks properly, they become more docile, rear quicker, and become independent quicker. There is no comparision in the growth of chickens and the quality between the chicks let run wild with mother, and those when the mother is kept confined.

Certainly some breeders do let a hen have a little latitude by having a ring on her leg, to which is fastened a certain length of cord or chain, but she is in my experience better confined.

The first feed of chicks is the bought preparations from reliable firms, or as a substitute the following:—4 lbs. of unsweetened biscuits, ½ lb. of oatmeal, ½ lb. of maize (the latter crushed up fine), ¼ lb. of grit and a little charcoal. Mix up thoroughly, moisten with milk and water and let soak. It will swell into a crumbly mass, which will keep sweet for twenty-four hours in ordinary warm weather. Any of the food preparations as advertised in this book are good. A little dry feed of small grains broken up in wheat, hulled oats and maize, should be sprinkled under a framework so that sparrows and other birds cannot be a nuisance, and will help to develop their digestion. Whole wheat, hulled oats and cracked maize can be given after three weeks, not forgetting meat and green food, this latter is not wanted if they are on plenty of grass. If no meat is obtainable secure meat meal or dried blood, taking care the latter is specially prepared, and add ½ lb. of this to twelve of other ingredients.

If chicks are hatched early while plenty of grass and insects are about, they do not require any extra green feed or meat; it is the birds hatched later that want special attention, and special feeding. Unfortunately in a number of instances, my own included, I have given all the early bred birds the feed, enthusiasm, and attention, and the later hatched ones have to a certain extent been neglected; the later hatched ones should have fresh ground, and a special effort on your part in feeding, especially as regards green feed and meat, but don't breed late chicks if it can be avoided. To all breeds of fowls that require short and sturdy shanks, give plenty of bone grit after six weeks.

Do not keep any water in the sun, or scatter food about in rays of sun, as it soon becomes tainted, and chicks or fowls do not

appreciate water made hot by the sun, and the bowels are soon affected. Oats sprouted in shallow dishes with perforated bottoms are splendid feed for growing chicks after a month old, or wheat can be treated in a similar manner, throwing a little light soil or sand amongst the grain to help it germinate.

When larger numbers of chicks are operated with, dry feeding is adopted, but there is only little saving of time. A mixture of millet, and other grains cracked small is generally used, or the bought preparation. Buttermilk as a drink is a splendid food, and no meat is required when this can be obtained, chickens grow marvellously when this is given them, as it contains a concentrated essence of protein.

Ground peas are a splendid muscle and bone forming food, and pea meal is a good substitute, if you have no method of grinding the peas.

Methodical feeding, a little at a time every two or three hours, is the custom of the principal breeders, easing off as the chicks become older. Night feeding of chicks is resorted to by some breeders in England and America, where the days are so short in winter, but it is not a necessity in Australia, as we can grow our birds from 1 lb. to 1¼ lbs. per month of the utility breeds by daylight feeding. Keep the chicks dry and have plenty of shade, watch for lice, but if you have dusted the hen, and wiped just a few of her underfeathers lightly with kerosene (just a brush with some on your hand), you will have no trouble.

Chickens, as they grow, if running through too much wire netting, are liable to develop wry tail or some deformity in their struggles, or if the boxes are too small the weaklings are jammed in corners.

Removing chicks every six weeks on to fresh ground is a great tonic for growth and vigour, but, unfortunately for the owners and chicks, it is not always possible.

What is known as "broiler" chicks in America, from eight to ten weeks old, are not fashionable in Australia, because the upper classes are not educated to this luxury, so there is no necessity for using fattening ingredients exclusively. When feeding a foster mother under a coop let her have whole maize, otherwise she will cost as much to keep as her twenty or twenty-five chickens she is mothering.

Chickens reared in cool districts generally make the best birds, they take longer to mature, but they win the race for stamina and quality at the finish. If you are not an early riser scatter a little dry food overnight, so that the chicks can have a start directly after daylight.

If working on a utility plant it is best to confine the hatching of chicks to a certain time if possible. Make a special effort by having sufficient incubators and eggs to have them all off in two hatchings, or three at the most; such an effort saves a lot of enthusiasm, swear words, weedy chicks and deaths. Don't let

anything become a drudgery by prolonging the hatching season; you want military training here, smartness and punctuality, and the early chicks do not get all the tit bits, and the late ones the disease germs.

If chicks are hatched late, and they are running on the same soil as previous hatches, they do not get nature's pickings, because the early chicks have worked the claim out, and there is something in fresh or virgin soil that promotes the growth of chicks, that you, with all your versatility of feeding, cannot give. Pigeons are the same, as parents flying out at liberty obtain something from the soil to feed their young that is not obtainable in a loft.

Chickens hatched too early for utility will lay in five months' time, and after a couple of months fall into moult, and then you lose a couple of months laying in the most profitable part of the year.

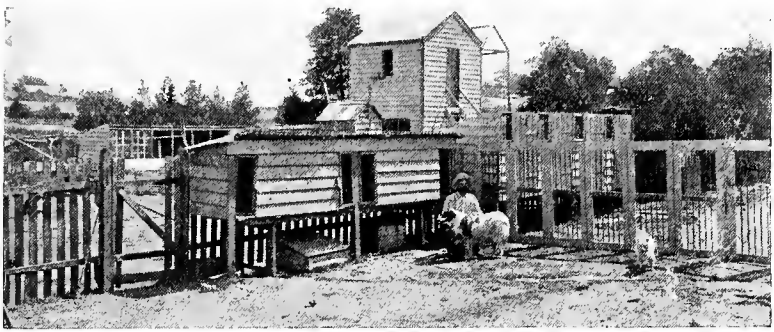
Even with all your experience you are liable to be beaten, as the vagaries of the weather upset your calculations, but you will average this like the farmers do when putting in crops. In breeding certain heavy and utility breeds for show purposes, especially for male show birds, you want early birds, as it is rarely they are in full feather under nine or ten months old, and they seldom go into a moult like the females, unless shifted about a lot. January in England, June in Australia are the months for hatching show stock of utility breeds, commence in these months for utility breeds. For layers only, whether light or heavy breeds, April in England and September in Australia are the ideal months.

Late chicks for show purposes can be bred if special arrangements are made for their welfare, the general opinion amongst fanciers and utility breeders is that it is a waste of time, energy and food rearing late chicks, under ordinary methods. That is so, but with special preparation and ground facilities late chicks can be bred successfully, as in some breeds of the marked and laced varieties, it is a peculiar phenomenon that the very early and late hatched chicks have the best colour and markings.

When hatching late chickens, dry feed only must be used, unless the other is mixed fresh every time. The ground must be fresh, with no chickens reared on it before that season, the ground should be irrigated by garden hose or gravitation two or three times a week; a few old bags kept moist should be laid about here and there to encourage the breeding of worms and insects, and you can, providing plenty of shade is about, breed late chicks successfully in hot and dry climates.

Often in the proper breeding months of the year your pen is not fertile, while later on fertility is good, and for show purposes, especially if you have a well mated hen it is a pity to waste a valuable egg, but I cannot recommend late hatching for Black Orpingtons where so much size is wanted. Buff Orpingtons could be bred late, as the fresh colour in pullets will beat the early ones, which are faded.

I am not writing this to advocate the breeding of late chicks, but for all of those who are breeding under my scientific methods, when only a limited number of eggs are available, the hatching season must necessarily be prolonged; and the chicks can breed successfully if worked on these lines, and all will have an equal chance. Do not breed late hatched chicks for utility purposes; close down on eggs on October 7th in Australia, earlier in Queensland, and if you are still short of your required number set again in March for a fortnight, and these early April chicks will thrive wonderfully, as the Autumn rains give them the foundation.



THE AUTHOR'S PIGEON CORNER.

Chickens hatched in April will lay just as soon as those hatched in December or January, and you save three months' feed bill and a lot of worry. I should follow suit in England, as the chicks are fully feathered in two months and the cold or wet does not effect them, as having natural feed, with the other, they are kept in the best of condition, and we rarely have those drastic winds in the Autumn months that play up with feathered life.

The bags I mentioned are removed now and again and the chicks induced to eat the worms, then they can be soaked and cover again the same soil.

I am not a believer of feeding chicks on hard-boiled eggs and bread crumbs; it is unnatural. The last thing taken into the chick before it emerges from the egg is the raw yolk, which sustain life for 80 hours, if necessary, before feeding.

Use the yolk of egg *only* raw, mixed with bread crumbs, and you have a natural food. The hard-boiled egg is a mass of indigestion to baby chicks, especially those in brooders, the bad effects are counteracted in those running out with a hen, as nature soon informs them that some ground tonic is wanted, but brooder chicks only obtain what you give them, and hard-boiled eggs, especially the white, is a corrosive poison. Chickens want to be fed on unsophisticated feeds to keep them vivacious, no ambiguous or

doubtful feeds must be used. Your aim is to ameliorate or improve the feeding, and any feed that will make the chicks *atrabilious* in the organs must be avoided. All chickens have to go through the vicissitudes of fortunes, as they have a lot of enemies and death traps, but injudicious feeding is their funeral bell, or in other words their trypanosome, "sleeping sickness," as chicks generally go drowsy before dying. Some of my readers may not agree about hard-boiled eggs, but common-sense must show them that hard-boiled eggs is an old prehistoric method in these enlightened days of chicken rearing.

Do not forget the ground charcoal, that is the bowel corrective, or absorber of poisonous compounds; it acts as a filter, mopping up all products in the systems that are antagonistic to the organs of the chicks or birds; even if a man swallowed strychnine, and he swallowed powdered charcoal immediately, he would have little inconvenience, as that has been proved in the "Bush of Australia." All the same, there is no necessity for you to experiment.

Ducklings should be fed on the chicken mixture of ground biscuits, etc., the first six or seven days, then pollard, bran, pea meal, and maize meal can be worked together as their staple food. Having plenty of shell grit handy, an ordinary sized duck will eat half a pound of shell grit a week, especially when she is laying. In Australia ducklings require no heated brooders, a fireless brooder placed away from wind is an ideal brooder.

Ducks require a vessel deep enough to immerse the heads in right over the eyes, otherwise their eyes clog up, and become foul and discharge. They grow so quickly, that in ten weeks they are ready for market. Green food is half their feed, which reduces the expense; scalded Lucerne chaff, that is left standing for half an hour, and mixed with pollard and bran, is highly appreciated.

Do not give raw cabbage to ducks or ducklings, as the pieces are liable to get stuck in the throat and choke the bird. Ducklings are very easy to rear if you have breakwinds provided. If a breeder cannot rear ducklings, I am afraid he would be a failure at chickens, and worse with turkeys.

Feeding.

THE various methods for feeding fowls are legion, but in Australia we have probably the easiest in the world. The birds are fed on a mixture of one-third bran to two-thirds pollard, mixed with liver soup. If no green feed is available, the following is the menu :—Half-gallon of Lucerne chaff (this is scalded overnight or early in the morning) and half-gallon bran to one gallon of pollard, all mixed up crumbly. I prefer a certain amount of scalded wheat or oats to mix in this, as it makes a better food and a better crumbly mash. This is fed lightly in the morning on the extensive system, or in the evening on the intensive.

The grain, which is generally wheat, is given at night in extensive and in the morning intensive. Some intensive breeders give a light meal of mash in the morning, grain at midday, and mash again at night, with probably a little extra grain in the latter for the fowls to scratch at early in the morning, but, if feeding more than twice a day, be careful, or you will over-feed. Oats are used at times, but the best way to use oats is to scald or boil them and use in the mash. Maize is used in some districts, but should be fed very sparingly to adult females. The quantities should be regulated according to the breed, etc.

In England a little more versatility is used in mash feeding. A mixture of biscuit meal and Sussex ground oats, dried off with sharps, is generally used for egg production. This is varied by pea meal and Sussex oats, dried off with sharps, for promoting bone in growing stock, and is used also for egg production.

Sussex ground oats are not be confounded with oatmeal; it is quite a different thing, as the oats are ground between two millstones revolving over each other different ways.

For fattening purposes the birds are enclosed in a coop with a lath bottom, having a tray in front, and the birds have a mixture of barley meal, Sussex oats, milk and a little fat; maize meal, mixed with the above, can also be used.

The above can also be used if force feeding from a cramming machine, only in this case the mixture is made soft to pass through the feeding pipe.

In giving soup with mash, there is not any gain; if you can, feed fresh raw meat, as you are only wasting time and firewood, but the mash can still be scalded with milk or hot water. Of course, if you have sufficient vegetables to boil up, meat can then be cooked.

If you make a practice of boiling wheat, barley or oats, as some breeders especially in England do, you can then boil meat at the same time.

Bread and milk scalded, freely used if operating with special birds, especially as a midday lunch, but these are all simple mixtures. Bread and milk is a very valuable food in certain illnesses, such as liver trouble, crop binding, etc.

Telling Day-old Chicks.

THE fortune-tellers always have an attraction for the human race, especially for the females; they like to be wafted into an imaginary atmosphere. The unknown and unwritten are a powerful magnet, the crude truth would not be appreciated, but the embellishments are the attractions, and as a rule they get little truth, but a lot of the latter, according to the price they pay.

Selecting eggs to produce cockerels or pullets comes under the same category. All sorts of wild rumours and instruments have been sold to select different sexes, but when one makes out some bananas to be males, others females, either the instrument is wrong or your faith is sadly lacking.

Long eggs, short eggs, eggs furrowed at the bottom, the egg that stops quickly when spun round on its side, and all other methods so far tried, have only developed embellishments, and even the great Egyptians, with all the thousands of years' tuition, have failed to locate the difference.

Then we pass on to day-old chicks.

The Egyptians do possess this secret, and I have been informed can tell them before they are out of the incubator. They are wonders on incubation, but I doubt if their methods would work in England, as I think the Egyptian climate has a lot to do with the success they have in hatching chicks. I do claim that I can tell day-old ducklings, but have never had any experience in the selection of day-old chicks. For some reason unknown to myself, I have never experimented in this direction, so the results are not my own. Personally, I don't think anyone will ever be able to tell the sex of day-old chicks of all breeds, still I am open to conviction; I believe a keen breeder, that is gifted with some unwritten trait of character, may, if operating or specialising with one breed, tell in time the different sexes of *his own strain*, but will be all at sea on another strain of the same breed. One man pins his faith to the ribs—the female has the long body with the last two ribs farther apart. This is where the sense of touch comes in, but I do not think such a man has had any experience in Plymouth Rocks or he would not pin his faith to length of body. The eye is another factor if focussed under a magnifying glass, the deep rubicund coloured iris denotes males, the lighter coloured, females. This is absolute rot; I may have understood pupil, but never the iris, as some females, in White Orpingtons, for example, have a gooseberry eye, others a red iris. The beak setting, if carried with a straight outlook from the eye, denotes males; if inclined to be downfaced, females. Now, all of you

who have the necessary gift of telling when a line is straight, this is your opportunity. If the head is convex, male; concave, female. This sounds easy, no gifts required, and as you have a double-barrelled example, you can use your sense of touch and eye. In all the other theories you want to be gifted with a sensitive touch for the ribs, a sense of colour for the eye, and the straight eye for beak setting. You may not be blessed with any of these traits, so you will have to call in the expert. Another method is to take an impression of the ball of the foot in plaster, and you will find on examination that the indents on the ball of the foot of the male are much broader and more inclined to curve than the female. You can try the lot, but I should insist in having three out of four experiments to be reliable. Another way is to blow the feathers back from the vent, and if the lip turns down it is a male, if up, a female.

Another method would be to procure mind readers. Surely if there are people possessed of this wonderful faculty of revealing the unseen in the human race, they should have no difficulty in deciding such a simple problem as fore-casting day-old chicks. People who have the magnetic power of compelling others to submit to their will, should be able to say to a day-old chick, "You must become a show bird, or a 300-egg producing utility worker." But perhaps this is a dream; I am treading on dangerous ground.

That the sexes of day-old chicks will some day be revealed I feel certain, and am exceedingly optimistic about it; but up to the present we have no reliable guide.

I know that the majority of chicks that die in the spring and early summer months are pullets, but that does not solve the problem; we want to be able to tell the sexes while they are alive. Even supposing everyone knew how to separate the sexes in day-old chicks, it may not be the *sine quo non* we think it would. If it was controlled by a syndicate, or in the hands of day-old chick vendors, they would certainly have a compound monopoly.

Supposing that we knew how to separate the sexes, everyone would not discard the cockerels. There is a certain law of supply and demand for table poultry, but even here pullets are better for the table in quality of flesh and plumpness than cockerels, because they are always better feeders up to a certain age, and rarely quarrel with one another or kick up a disturbance to cause fretfulness or any other worry that tends to reduce flesh, so that we would have unlimited demand for pullets as layers and pullets as table birds. However, the points of table birds are not the subject of this article. The problem is, can we select any definite specification that will give an inkling to start on? My theory is based on the length of breastbone. So all those who are line breeding in the utility world (and it is more particularly the utility breeders who wish to reject the cockerels) will find, upon examining their pullets, that the majority of the best layers have short breastbones. This will vary according to a breeder's strain, as different strains are built on

different lines or body formation, and one requires to know the peculiar traits of his own strain, but generally in all White Leghorns, for instance, the workers are built with short breastbones, while the cockerels are considerably longer. Even in laying strains the length of breastbone approaches very near the vent, and is nearly always horizontal or turned up slightly at the end towards vent; very, very rarely does it slope downwards. I will grant that it is possible to have females with long breastbones; if so, they are best classed with cockerels, as they are of no use to foster as layers. That class of female will not pay for her keep, so even if one does make a mistake and select a few pullets answering this description, they will save themselves the trouble of rearing drones. I should suggest that my theory be experimented with, selecting birds of the same variety and strain. The short breastbones, the females; the long ones, the males. Some may be inclined to select the largest and biggest framed birds, and especially the hustlers, for their feed; but in the latter I fancy they would be mistaken, as females are the high kickers when the dainty bits are flying around.

How to Prepare a Bird for Show.

IF a bird is worth going to a show and you have sent it, if unable to attend show yourself, for comparison, get an opinion from some reliable source of the bird's merits, or deficiencies as compared to the other birds. In England almost every show is reported in one or other of the fancy, and all birds in the money are commented on in papers, but if the bird has not been placed but is of any special merit, reporters usually comment on same. Anyhow a letter giving the bird's class number and a fee sent to any paper will usually get you a special report on your bird from the reporter. The fee is charged in order to prevent frivilous inquiries, as in England with so many shows it would be impossible to report on even a large percentage of the birds out of the tickets at every show.

Do not be downhearted if you do not win the first time of asking. The judge may have his peculiarities, the bird may have been in a bad light, or some little detail which throws him out for the time being. Do not be too "cocky" or egotistical if you win, as you may have struck weak competition. I have had birds win easily one year against everything, and the following year I have shown better birds, with an optimistic spirit, only to find out that, although my birds were superior to the previous year, the other breeders had still better birds; and I was left to wonder.

If your bird possesses merit, give him three tries under different judges (this was always a rule of mine), but, of course, if you find him outclassed then your dream is ended as far as that

bird is concerned. The winning birds may have faults, but don't be narrow-minded and condemn them because you do see some fault showing vividly that a judge put you out for previously.

Never go muttering and blubbering away to yourself, or cater for sympathy from other disappointed exhibitors; certainly you will find the majority cater for your craving, and sympathy is cheap, and as the winners secure the kudos and prize money, the beaten ones are welcome to the sentimental crust. This is the fortune of life, breeding, and interpretation of standard points according to the whimsical ideas of judges, as all judges have their pet theories, unconsciously so maybe, but ask any old fanciers who have shown for a number of years under these judges, and they will reel you off the pet likes and dislikes of each particular judge. Each one thinks that his own ideas of the standard are correct, and he is not a judge unless he has some concrete and fundamental foundation in the placing of his awards.

If beaten, don't be afraid to ask the judge the reason; wait till you can get him away quietly, and then have an interchange of ideas; it may be to your advancement later on if you do it in a proper manner, quietly and with tact. New beginners are rarely wrathful to judges, as they are conscious of his superior experience. It is the fancier who has had the luck perhaps to win with a certain bird at shows in a section that happened to be weak, who makes the commotion and jumping Jacks, and the fickle-minded public pander to his idiosyncrasies and the poor judge is left to fight his own battle, because the growler is generally a local man, and his arguments carry more weight than the judges from the onlookers, because they don't know any difference, and the beaten one is sure of pity and sympathy from his local supporters. This class of exhibitors are extremists, they are generally telling a judge that "he is the best who ever officiated," or are catering for his downfall when they are beaten.

Generally the best birds win collectively under all judges with reputations; they may go down 2nd or 3rd, but if the bird keeps in condition it comes back to its own again. Besides we don't want certainties in judging, as, after all, it is a sporting pastime, and no man or bird can be a model of clay. If the man is "off" at this show, the bird may be "off" at the other. The prevailing uncertainity is one of the charms of showing. All sport comes under the same category; they are never two days alike, and in showing birds you should educate yourself to similar conditions. Respect the bird, respect the judge and officials, and have respect for yourself is the ideal mannerism of a broad-minded fancier to cultivate.

All foreign matter or feathers on birds should be removed before judging; this is not faking, it is improving a bird. Faking, as I interpret it, is "the colouring of feathers, legs, or any part of bird," and the adding of feathers or foreign matter. White Wyandottes often have one or two black or shandygaff feathers,

especially the males, and it is sentimental' nonsense to leave them in. Barred Rock females nearly always have one or two pure black feathers on breast or wing. White Orpingtons often have a buff or black feather, Buffs a white or faded feather, Gold or Silver Wyandottes a double or tripled laced feather in females, through the original feathers becoming removed. I am not referring to flight or tail feathers, as you remove them at your own risk. It may seem a distinction without a difference to you, but it is a distinction with a difference to the judge.

The down that often comes in between toes of birds and the one or two on legs should be massaged off by electric friction.

White fowls have to be shaded more or less, though there are stay whites in Leghorns, Rocks and Wyandottes which do not require it, but even on them the weather will remove the sheen and quality.

A shower of rain on a bird, especially the males, is more detrimental than a week's sun, so beware of showery weather, the feather wants to *coruscate*, the lustre to show out when in condition. Your aim is to ameliorate nature as far as possible, and unsophisticated feathering on a white bird is a charm, and comes under the technical term of satin feathering.

Birds that you expect to score a few bull's-eyes at shows require different treatment from your ordinary laying stock. You require a better class of house. If you have not already built a decent one, your best plan would be to take a run round and view several prominent fanciers' yards. You could then learn for yourself by observation what style of building would be most suitable for your purpose.

Show birds, either young or old, to procure the best results, should be kept by themselves, more especially the cock birds. If you go to a show, and, by comparison, reckon your bird at home is just as good as the winner, keep it to yourself, as all ignorant people have been saying for years "that they have a bird at home that could knock spots off the winner." We are all inclined to think our geese are swans, and it would be poor for the poultry societies, as regards entries sometimes, if we did not. But if you think, after going to a show, that your bird has a chance, enter for the next show; it will only cost you from 2s. 6d. to 4s. as the case may be; for this you have your bird judged, a coop found for you, the bird watered and fed, other birds to compare with, prize cards if you are successful, also prize money and specials, to say nothing of the experience, and your name in all the papers as the winner. It is a cheap four shillings worth, and you have often spent money in a less profitable way. Do not be too sanguine; go ahead slowly, as no matter how good a bird may be, sooner or later he will go under. A man or woman who rushes away right off the reel with three or four first prizes generally feels the fall severely when the tide of success turns. After a few reverses they may get crestfallen, as people have a nasty habit of asking how you got on, after a defeat, and some cannot stand

View of Mr. W. H. Cook's (Orpington) Exhibition and Incubator Houses, undoubtedly the largest in England. The former has accommodation for some 200 Exhibition Birds on quite new lines. The Incubator House has machines installed, holding close upon 2,000 eggs at a time, also with a special chicken nursery. All the heating is done by Gas, whilst the buildings are lighted with Electricity. *(See Advertisement pages for Review of Farm.)*

the way it is said. With another reverse or two they generally retire from the contest. Always send your bird expecting to get beaten, then you will not be disappointed. Some of the best wins I ever had were with birds I did not reckon had too good a chance. You see a fault once in your intended show bird, and every time you afterwards look at the bird you cannot get past it, whereas the judge may miss it, as the bird is only under his eye for a minute or two.

To prepare a bird of any breed for show, you will find it best to enclose it in a room with just sufficient light to enable the bird to see to eat. Some fanciers keep their show birds entirely in the dark, only drawing up the blinds, or opening the door, to let them feed. I do not hold with this ; the other method I have found to be the best. Place about three inches of fresh horse manure, not too damp, over the floor, which will be sufficient for the time you have your bird enclosed, *i.e.* a month.

If hard feathered birds, such as Game, Minorcas, Leghorns, and Andalusians, feed grain freely. To the looser feathered birds you could give mash, being careful to place such food on a sack, or in a wooden trough. If your Minorcas or Leghorns have not developed sufficient comb, you could, in that case, give them soft food, also toast soaked in ale. Be careful, for it is easy to put comb on, but it generally means sacrificing the comb to take it off again. It is better to have too little than too much comb, as the excitement of a show will always extend a bird's comb. It will be close on three weeks before you notice any decided improvement, as birds fret a bit during the first ten days, and have a tendency to go off, but after that they improve rapidly. You cannot obtain the same sheen on a fowl running out, even if it is a Black Orpington or Langshan, as if you shut it up; the colour improves wonderfully with Brown Leghorns, Game, Partridge, or Golden Wyandottes. There is no comparison between birds shut up and birds running out. All white varieties should be kept in as they are putting on their last feathers. Catch them while they are sappy or quilling in the feathers, which then look creamy, but become white as the sap leaves the feathers. You could let these varieties out each evening after sunset to give them a stretch. Do not forget grit and green feed. Handle the bird for lice, dusting with some insect destroyer, if they are found. At the end of the month the bird should be cherry ripe, fit to show, and at its best—providing it is old enough and has properly moulted. On the day you despatch the bird to the show you should scan the legs to see if any down is on the sides. Remove it or any other objectionable matter, then wash and clean the legs well, finishing off with a little vaseline ; the head should also be cleaned and oiled with a little sweet oil, but do not leave the comb with a greasy look ; wipe off the oil with a little warm water. Have your basket ready with clean straw on the bottom and lined with canvas to protect the bird from the wind. Pen your birds as

early as possible overnight, as this gives them time to accustom themselves to their surroundings and show off to advantage.

To make the most of a Leghorn or Minorca rub a stick gently along the back once or twice daily, also stroke them under the chin. These breeds are naturally wild, and a wild shower often loses the ticket, so they should be handled and trained for the best results.

An Orpington or Wyandotte is generally a better shape if it has been fed but not gorged before judging.

Runner ducks should be fed on oats only a fortnight before a show, and, if reach is required, place them in a pen, dark on all sides, hanging up a lettuce so that they can just reach it when fully extended.

The food and water should be given in the ordinary way, only at the show leave a couple of lettuce leaves on top of the coop to attract their attention. If your bird is inclined to show wild, it is just as well to take a piece of canvas and place on top of show coops. The luminous light through canvas sometimes hides a few defects. It is the judge's fault if he does not remove it, such a light will often make a purple sheen look green.

Pekin ducks require to be caught when moulting and kept in a fairly dark house, on a dry floor, well sprinkled with sawdust. They want any amount of green maize, lettuce, or rape, so as to bring out the canary colour, so necessary to win in hot competitions. Very little bathing should be given to them, as it takes the gloss off the plumage, but do not forget grit.

Fowls returning from a show should have a dose of Epsom salts—about a teaspoonful of liquid. Don't rush them with green food or grit, as they are likely to overdo it and bring on dysentery. Give food and water gradually; show them a dust bath, slightly damp, and notice how they will enjoy it.

How to Wash Birds for Show.

IN washing fowls the first thing necessary for the new beginner is Confidence; the second, Confidence; and the third, Confidence. It won't hurt the fowl if it gets a mouthful of soapsuds, it will only affect its dignity, and a bath tub is just as healthy for fowls as human beings. Start on the comb and head and the humiliation will keep it quiet; start anywhere else and you will receive a shower bath.

Preservene Soap is the best in the world for washing birds.

These are the days of keen competition, and unless you show your birds in tip-top order you will suffer. With two birds of

equal merit, the bird shown in the best condition would romp home, and oftentimes a bird may not be so good as the other in points and then win on condition and washing.

White fowls of every variety should be washed before a show. This should be undertaken about two days before, and then after drying before the fire in a coop, put in a pen with nice clean straw, throwing the grain in for the birds to scratch; this will help the feathers to web out properly, and also keep the birds lively working in the straw.

Coloured fowls, such as Dorkings, Wyandottes, Orpingtons, should be washed seven days before the show, as their feathers take longer to web out and also for the sheen to come back on their feathers.

The following is the method to be adopted in washing:—First slice up some good soap that has plenty of lather; boil the soap in a saucepan or some suitable vessel, then have two baths ready about half-filled with water—the one fairly warm but not hot, the other with the chill taken off; this one should also be blued. You will require to have a lady's opinion as to how much blue is required, but if drying in the sun allow more blue than drying by a fire. Into the unblued water pour the soap after it has melted properly and add about two tablespoonfuls of ammonia. Secure your bird firmly in one hand and give his or her legs a thorough washing, cleaning the legs well under the scales if they are dirty; then place the bird in the water and rock it to and fro, forward and backward, also working the soapy water well into the feathers. It takes some time to properly wet a fowl all over, especially in the winter time, as there is more oil in the feathers—Nature's method for keeping the rain and cold off. Rub the feathers well with a sponge or flannel, being particularly sure that the tail and under the throat are also well washed. Rub the feathers all ways except direct up the quill until you are sure they are perfectly clean. Then rinse as much of the soap out of the bird in the same water, rubbing the feathers straight from the neck to the tail. Place the bird in the blue bath, on the side again, rocking it forward and backward, keeping the tail well under the water; then turn it over and repeat. The object is to remove all soap out of the feathers, as any left in destroys the effect. In a properly washed fowl, especially in the utility breeds, the feathers should, when dry, look like a sort of embossed work. Leghorns are a tight-feathered bird and they are closer to the body; after lifting out of the bath run your disengaged hand along the back and rinse out as much water as possible. Have a clean towel handy and dry the bird as much as possible. After this, balance the bird in some awkward position to try and induce it to flap its wings; if this is accomplished the bird will dry much quicker. Then have a fire going, but not in a draughty room—if it is, place a screen between the door and the fire. Do not place the bird any nearer than three feet from the fire, and if very warm, five feet should be the distance off; you will scorch the bird's

comb and lobe if you place it too near. Turn the coop round every quarter of an hour for the first two hours, after that they can generally look after themselves as they will start pluming. Thorough washing and rinsing are the two essential points to be observed. The following morning the birds can be placed in the straw pen mentioned. Before sending to the show rub the bird's legs with vaseline and clean well. Anoint the comb and wattles with a little sweet oil, only don't leave it with a greasy appearance; rub it off with a warm damp cloth. The rest is quietness and a clean coop to travel to the show in; after that the judge's verdict and your reward.

Ducks should be induced to take a bath before a show, although the Pekins, if kept on clean straw the previous week, would be better without if they are colour fed birds.

Dry Mash Feeding.

THE above form of feeding is suitable for two concrete examples: the novice or business man, who must be at his work before he can mix mash in the morning; or on large plants for commercial pursuits. The principle is a labour saving one, and that, in some respects, is of far greater importance than extra profits, as it certainly avoids a category of detail labour, although the expense of fitting up hoppers, concrete floor, etc., is more costly than when feeding under ordinary conditions.

The most sanguine experts of dry feeding admit that for best results the mash feeding is best, but if hopper feeding on a plant saves from two to four hours a day in labour, then a small shortage in egg production would more than recoup the outlay of labour. Even now it is questionable which is really the best for the fowl, dry or mash feed. Most people will assert that fowls prefer mash food, but that is nonsense, as it is a matter of education and environment, as they have become used to mash feeding in some shape or form from chickenhood. If chickens have never seen or become accustomed to mash feed, then you would have to educate them to it before they would eat it.

It is a well-known fact that dry or hard feed for persons suffering with indigestion is best, providing it is masticated properly. If you eat wet, sloppy food very little saliva is sent into the stomach, whereas if you nibble a hard ship's biscuit or hard toast, chewing it up thoroughly, making it from dry to mash feed by Nature's methods, it follows more good will result. You cannot expect any organ or machine to do its duty unless you stoke it up well, and the more saliva you can take into your system, then the less strain

on your digestive organs. In a fowl it acts in a similar capacity, although not to such an extent, as the food is conveyed to the crop, or packing house, before its entry into the machine room.

It is a fact that they do convey saliva from their mouths; if only a little bit it suffices, as it supplies the crop with gastric juice. That and grit sing the duet in the gizzard while the process of grinding up the food is going on. This in turn supplies the bile and pancreatic juice in the intestines, which if not available would result in the death of the bird.

The only difference in feeding dry and moist mash is water, and as the birds can help themselves to that, the only benefit to the fowl is to fill up their crop quickly, no advantage, because as a rule the fowls are not fed for an hour after daylight, and if dry feeding methods were adopted, they would have had one-third or more of their breakfast before you came round with the mash.

If poultry fanciers and others can secure a large amount of vegetable and meat scraps, they should by all means boil it up and feed wet mash, but if no scraps are available, then the other system is worth trying, making up your mind that it will be a trial, not a sloppy method of fickle sentiment, but a proper organised trial, to test it properly. Do not, however, experiment on fowls that are laying under wet mash conditions. Commencing with pullets at four to five months old, or first year pullets going through moult, let them become accustomed to it before they start laying, then the system will have a reasonable chance of success.

Again, Nature's methods of feeding animal food is in a raw state, so why waste time and firewood cooking meat? Put it through a sausage machine if you like, but your cooked meat loses half its nourishment in the soup, and this only contains water of no benefit to the fowl, as she always has that before her. You have added nothing, only misspent energy, and, as a consequence, another item is put on your daily record of expenditure. No one thinks of boiling green cut bone, then why adopt different tactics with a similar product?

Wet mash feeding, more particularly to heavy breeds when going through a moult, is a curse in poultry yards, especially those breeds possessing hereditary tendencies to fatten internally. Plymouth Rocks and Indian Game are very subject to it while moulting, and if so fed should be given sparingly. If fed heavily, or given as much as they will eat, they fill up and go and sit down or stand in one corner all the morning before they make a scratch. Dry feeding would be far more suitable in a number of places, where the kind attention of the owners result in disorganised constitutions of the birds and a disorganised bank balance at the end of each week.

The formula of making the mash is as follows: 100 lbs. of pollard, 50 lbs. of bran, 10 lbs. of pea or oatmeal, 10 lbs. of meat meal, 4 lbs. of linseed meal, 1 lb. of salt and sulphur. Mix thoroughly. Another formula: 100 lbs. of pollard, 30 lbs. of bran,

Mr. R. NODDER'S SEMI-INTENSIVE BREEDING HOUSE.

20 lbs. of oilcake ground up, 10 lbs. of pea or oatmeal, 5 lbs. of meat or blood meal, 4 lbs. of linseed meal, 1 lb. of common salt and sulphur. Both of these are for egg production.

The size of the hoppers vary, but those holding from 40 to 50 lbs. of feed are the best. A hopper holding 40 lbs. will supply twenty fowls for three weeks. Approximately it depends on the class of fowl you are operating with. The hoppers are best constructed of wood, lined with tin inside, if you make them yourself, but galvanized iron ones are everlasting.

Inch netting placed over the mouths of the hoppers will keep the fowls from throwing it about with their beaks. Sometimes in wet weather the salt will bind the feed, so you will have to keep a look-out to see if it is running freely. Birds fed under this system want plenty of exercise, and all grain feed must be buried in litter; no lackadaisical methods of running trails of wheat or other feed round yards. The grain must be forked in, whether birds are confined or running out, but drastic burial in litter must be adopted if the birds are confined.

Cover the floor of the house with two inches of sand, on top of which put some litter consisting of one-half horse manure that you know is not contaminated with decayed vegetation or other poisonous refuse and the other half leaves, but long sheafs of hay or straw preferable, and you will have no reason to complain of giving it a fair trial if you follow this plan.

Sparrows, rats and vermin must be guarded against in dry feeding. Inch netting for birds and concrete floors for vermin are imperative, otherwise you only encourage vermin, and that means encouraging disaster. I use the terms as follows: "Hopper feeding" is having all the grain and mash in hoppers only—not recommended by me. "Dry mash feeding" is with hoppers, with this difference, all grain is buried in litter.

"Wet mash feeding" is the soft wet mash mixed up and given in the mornings, with grain at night. I prefer this of the two, but on large plants I do not, and I advise dry mash feeding for birds going through moult.

The Cheapest and Most Profitable Method of Starting a Poultry Farm for Utility Purposes.

THE first thing necessary is a little experience of handling fowls, and another a poultry farm handy, that you know is a success. To approach with a certain amount of tact and mannerism the proprietor of the poultry farm for information when necessary, but do not worry him during the day, unless he is a personal friend. Do not follow his methods or let him persuade you to alter your tactics from this article, but inform him you intend giving this a thorough trial before following the beaten track of poultry culture.

Following in the same old furrow and rut of poultry farms is too strenuous for ordinary individuals. The only ones who make a success are those gifted—and gifted freely—with individuality, personality, and determination. The ordinary everyday type of manhood is ever hearing of pastures green in some other enterprise, and tiring of details is induced by some flattering article in the papers to throw up poultry and try some other fashionable pursuit that seems to promise more profit and less details.

Having rented your ground—never buy it outright—you can always in Australia rent it with the option of purchase, unless the place is in a rising district and there is a reasonable chance of it increasing in value.

You will want brooders for rearing chicks. You can ascertain from your friend the best class of brooder. There are numerous ones, all fairly reliable.

A couple of months or so before you are ready find out through advertisements or from enquiries the best places to purchase day-old chicks, and make arrangements for the number of chicks you intend starting with.

The day-old chick specialists generally finish up their hatching before November in Australia, and before June or July in England. Make a business proposition with the proprietor for the number of chicks you require for delivery on April 1st in Australia, or from approximate dates, March 14th to April 14th and September 1st in England. You will probably be able to secure chicks from his No. 1 pen at a reduction, as it being the off time of the year, he will appreciate the order, as it is not in season. The price of day-old chicks varies from six to twelve shillings a dozen in England, and from twelve to eighteen shillings a dozen in Australia, but for a special contract at the off season you would probably secure those of the best grades for the lowest or intermediate price. We will presume you order five hundred

chicks for twenty-five pounds of the utility breeds. You will want five to seven brooders to accommodate that number. You can make these brooders for twenty shillings each in Australia if you are handy with tools, or fireless brooders for less, and providing the autumn is a mild one, the fireless brooder would be suitable. If you cannot make them you will have to purchase. Here, again, you will secure a reduction for buying in off season. It would be wise to contract for one hundred chicks more than you require, as the proprietor of the day-old chick establishment, having no experience of autumn hatching, would only put down the same number of eggs to produce five hundred chicks in the spring, but often the fertility is a bit weak in the late summer months, and fifty or one hundred more chicks, providing he hatched them, would not inconvenience you. As the vagaries of the weather are not so drastic in the autumn, chiefly through more even temperatures, and absence of equinoctial gales and low isobars of wind pressure, you will have no difficulty in rearing the chicks till they are two months old. They will be fully feathered then, and will be able to withstand any cold or wind that comes along, as they have youth, vigour, and keen appetites to support them. They are able to stand weather conditions better than adult fowls. Make your mind easy on that. Out of your five hundred chicks you will probably have two hundred and fifty pullets, as in late hatched chicks you again score, for the percentage of pullets is higher. You would be lucky to secure two hundred pullets out of five hundred chicks in the spring months, as usually all the losses are in pullets, as they are the weaker sex. The two hundred and fifty cockerels marketed at five months old in good condition would fetch twice as much as the same class of birds bred in the spring months, and the price realized would pay for the feed consumed for the lot, so you would have your two hundred and fifty pullets for nothing, except labour.

These pullets would start laying in September, or not later than October, in Australia, and corresponding months in England. They should lay well into the depth of the following autumn, when eggs are dear, and by following my methods for egg preserving (see "Useful Items") you would receive the highest price obtainable.

During the spring and summer months the eggs could be preserved in the preservatives advertised in this book, and every egg laid would bring you from one penny to twopence each, and the birds hatched in autumn always lay well the second year if you like to keep them going. The expenditure works out as follows:—Seven brooders, £14; 500 chicks, £25; feed for six months, at one penny a week, is 2s. each, or £50 ("chickens cost one penny a week to feed after six weeks old"); oil, etc., £1; sale of 250 cockerels at 7s. a pair approximate (seldom less, generally more), £43 15s., leaving you with 250 pullets for £6 5s. Allow £4 5s. for deaths and weaklings, you now have 225 pullets at a cost of £10 at six months old, and they will be ready for laying.

When they lay early the birds will turn you in a profit of 20s.

to 30s. a week over cost of feed, and up to 40s. a week in Australia under these conditions. The chances of disease are reduced 50 per cent., as the lice plague and weather conditions are entirely in the favour of autumn-hatched chicks.

I have used no embellishments. The whole of the specification is simple enough to follow, and I know from my own personal experience, and the experience of others I have induced to try this method, that a certain success can be made of this system when the ordinary racket of spring culture of chickens is followed for utility purposes only. I advocate the combined breeding of Show and utility stock first, if you have the capital and experience; but for the outlay of small capital in utility purposes, no other method in any business proposition in the live stock world has such splendid opportunities of profits as this regima of mine that I have introduced in this book. You can, of course, operate with 1,000 chicks, or less than 500. Try it first, and if it is an absolute failure, you will lose less than starting under ordinary methods.

Five hundred Indian Runner ducklings could be purchased on similar lines, and here you would save cost of brooders. These would lay at the same time, but moult earlier, and then lay right through the whole of the winter months in Australia, and this, in my opinion, is a splendid side line in conjunction with fowls. The Runners in England do not seem to lay as well as they do in Australia, but there should be places in the South of England that are milder in winter than my place, Ballarat, in Australia, 2,000 feet above sea level, and the Runners often had to paddle about in the snow, and put up splendid records. You would find it hard to obtain the 500 ducklings in April, as Runners generally moult in the summer, and are laying again before the winter, but, if procurable, they are a splendid investment. The whole outlay of chicks, etc., is under £100, and half of that comes back at six months old, leaving you with the brooders little the worse and 225 pullets for £35. Twenty-five pounds, the original cost of chicks, and £10 spent in feed to six months old, you could allow an extra £5 to feed pullets till seven months old, although the majority will be laying at six months old bred in these months.

They are all your own rearing, and that means 50 per cent. better birds than if you bought them at the same age, as they are acclimatised to the surroundings. All the pullets would be pure bred, and that is also an acquisition.

When you have had no success with your spring rearing, you can always supplement your pullets by purchasing day-old autumn chicks, or breed them yourself—the latter preferable—even if some unforeseen occurrence arises, such as illness or a great demand on your egg trade; you can always have this as a stand-by. In any part of the world all you have to cater for is the feathering of chicks before the winter comes.

How to Start Egg-Farming Without Rearing.

A NICE little income can be added each week to supplement your profits without much labour or detail on a commercial poultry plant, while a woman who has no children, or is fascinated with poultry, in preference to being indoors can, with the help of her son, husband or other labour, easily work on similar lines. The one great keynote of success is to be able to tell if fowls are free from disease when bought, as they must be healthy. However, if you are not an expert, you can isolate the birds in a special house for a week and observe their movements, and this is imperative, as, even if you can select birds healthy, it is just as well to make certain, as once ground becomes tainted with disease, that is the end of profits.

Pullets can always be bought through some channel or other, through the poultry papers, through the auction room, or through people giving up or going away. Make a bargain, or, really, before making the bargain, test all pullets, as per the article on "How to Test Layers," and ascertain if you have a reasonable chance of securing layers, as you don't want a proportion of drones; but even then, if you are only paying killing price, you could buy, select your birds, and send the drones to market. You can fatten them up before doing so, as drones are easily fattened. Everyone will not be reading this book, so there will always be plenty of pullets to raise up, a couple of hundred or more, somewhere within your vicinity. You can, after they have been quarantined, transfer them to their house, intensive for preference, or extensive, to suit your own convenience, as the case may be.

You need not rush into it. Buy 50 or 100 as a trial. If you want confidence, there is little loss if it's an absolute failure; but if it is a failure, it will be through your own tainted ground or management.

By buying pullets the details of rearing chicks is avoided, and for quick returns it is a splendid business proposition.

The birds should all be sold off in the fall of the year. You will probably have to take a shilling a head less than the price you gave, but as you have had seven months' profit from them, the loss is ticked off against expenditure. Of course, you could pick out, if you have been watching them closely, the picked layers, and keep them another year, as it means eighteenpence to keep them through the moult per bird for feed, but that is profitable if they are likely layers.

The following season you can start again with another lot of pullets if you have been successful. Possibly sometimes you will draw a blank, but more prizes can be earned by the inexperienced in this way than by any other. I worked this repeatedly myself,

year after year, as a side issue on my own poultry farm, and only one year did I not show a good profit. £25 a year per hundred was the approximate average, and as you only keep them eight months in the year, it is a nice little nest egg to help you on to bolder methods, and you will make poultry a success, while perhaps under the other *régime* you would have been a failure.

We hear too much about failures, but it is inexperience, incapacity and inability to master details in chicken rearing that strand so many on the rocks. The method advocated in this chapter is a stand by; you can go on learning the chicken rearing, while attending to your layers, which, I may state, are fed and managed as per the article. Go on and win a healthy outdoor life, and maybe the foundation of the ladder of fame.

While I am here I must state that "*tainted ground*" is perhaps the biggest rock of failure that poultry keepers have to contend against. A party buys or rents a place either for keeping fowls in small or large numbers. To all outward appearances the place looks lovely, the grass is splendid, houses and runs in good order, but the place is a plague, a disease-stricken spot, and unfortunately it is impossible to tell until you have tried it. The owner before you may not have been the cause; it possibly has been going for a number of years. These sort of things are unavoidable, but for safety's sake, if you intend going in for a large number of poultry, start on new ground. Make that emphatic, it is more costly to start, but it is easily the cheapest in the long run.

A breeder never wants all his eggs in one basket, and on utility plants, where egg production is the foundation of the business, the purchase of pullets is a big consideration. But understand this, I don't recommend purchasing unless you can tell healthy fowls, or as a doubled-barrelled preventative, the isolation of purchased birds from your regular runs, but the real success of this is the discarding of the non-layers, weeding them out directly after purchasing.

This system is infallible, and is a gold mine on any poultry farm or in any yard, and the many failures of previous breeders can now be avoided, as each bird will pay for itself. That is the concrete example wanted as the foundation is there, and with that mastered the rest depends on your own individuality.

Breeding for Export.

NOW and again we have a spasmodic outburst from some quarter or other on the probabilities and expansion of a great export trade in both fowls and eggs for England. From present indications I do not feel optimistic on the future of the export trade, unless pollard comes down again to 6d. a bushel, and wheat to 2s. 6d., that we had twenty years ago, but it is not likely to occur again.

No breeder could make his salt catering for the export trade in birds, as he could not procure the quantity. The only ones that can, are the poultry dealers, who supplement the numbers by buying from the auction rooms and private breeders, until they have sufficient in the cool stores to handle.

I know one breeder in the Wimmera who forwarded thirty pairs of prime birds home, all selected by Government experts, and the returns after paying all expenses was 2s. 9d. on the lot. Needless to say the fire went out.

Even in the egg trade the prospects are not bright, as New Zealand's latest experiment January, 1913, is 9½d. a dozen, with all the expenses to be deducted.

The export trade will never be developed while things are brisk in Australia and New Zealand, as the markets are likely to be understocked with high grade birds and eggs for the next ten years for local consumption.

With seven years of competitions and the starting of innumerable poultry farms, and the education of farmers, poultry experts and others, eggs are 2d. a dozen more all the year round than they were ten years ago, when hardly a single utility farm existed. We have had ten good years in Australia, the seasons for the general body of farmers have been prosperous, and while they are so farmers have no time for side lines, as all their spare time is needed for a rest, after they have attended to the land, etc. Certainly all farmers keep a certain number of fowls, but the numbers would be increased if the seasons set in dry again, and we had a circle of lean years. It is a surprising thing that when things are looking ominous in the weather conditions the poultry trade of breeders is extra brisk, but good years bring no boom to breeders of poultry. No, the export trade need not trouble you. The egg trade is the profitable one for local consumption. The export trade may come, but perhaps in another ten years England will not be the dumping ground and rubbish tip of the world; she may have 3d. a dozen duty on eggs, and then visions of export trade would be blotted out altogether.

England could easily obtain all the eggs and poultry wanted

from the county of Devonshire if she catered for eggs alone on systematic lines, but with land locked up, *verb sap*.

The export trade may relieve a local market, but the produce sent away would never be profitable in itself, even though we could land our produce in the time of year when poultry produce is high.

Australian eggs are not fresh eggs, and that is the drawback, they come under the category of "preserved." The local markets for poultry produce, ducks, fowls, turkeys, geese and eggs were extra high this year (1913) for quality stock, and the breeders will always be able to obtain splendid prices when he can dodge the glut and market his birds when prime birds are scarce, and this book informs you the months to breed for that purpose.

Grade your eggs, place all brown ones together, ditto white, and if starting a utility poultry farm, the large egg will do no harm.

Nearly all utility farmers have private firms who buy the egg produce at a 1d. a dozen above market rates, as they can rely on the eggs, and this in itself makes a vivacious farmer.

Proper boxes with antiseptic cardboard divisions are used for egg produce, and the whole trade is far cleaner and purer than under the old conditions.

How to Make Market Poultry Pay.

GENERALLY the only ones to make market poultry pay in Australia are the farmers, they pay nothing for feed, and do not waste much time over cleanliness, and the outlay and interest on buildings are very small.

Farmers have their haystacks and the cracked grains from the harvesters to feed their fowls on, the birds take pot luck, but the surroundings help them, as they have plenty of run and scratching.

If a breeder buys feed he has only two ways to breed to make market poultry pay, he must either breed early or late, but even then the profits are not alluring.

If birds are hatched in Australia in September, October, November or December, the cockerels if sent to market would not realize the price of food they have consumed, leave alone wear and tear, work, and deaths. If you hatch birds in March, April, May, June, and July in Australia you can show a good profit; the birds hatched in May and June would certainly pay best, but as that is the end of autumn fertility cannot be depended upon, unless you have early vigorous stock. Birds hatched in May and June were bringing 10s. a pair in Australian markets this season (1913), which is about a record.

You should have no difficulty in hatching in March or April, I never had myself, and although the winter comes on pretty quick

it does not affect growing chicks with suitable quarters, as it is in the summer time we lose most of our birds—contrary to general opinion.

Pullets hatched in March or April in Australia, September or October in England, will lay well and longer than spring hatched birds, right into the depth of autumn when all others are in moult, and that is the profitable time.

In England and America birds could be bred for market under similar conditions and corresponding time of year to catch the highest prices.

Chickens hatched in September or beginning of October will be fully feathered before the drastic weather conditions sets in, which is not till January as a rule, but of course weather conditions are not reliable, the vagaries of some seasons must be allowed for.

A breeder can breed all the year round if he has the ground, and the breeds to operate with, in show and market poultry using his discretion in certain months of the year, but he would want a couple of trips away a year, otherwise it would become monotonous. The ordinary spring and early summer months of the year are certainly the easiest for hatching, and the surest way of losing money for market purposes. Let the other fellow breed in those months, while you come in after the glut is over.

All the ordinary householders and farmers are breeding in the late spring and early summer months of the year, as it is the natural time for incubation, but there is no profit in it for the poultry farmer.

The breeder must act on similar lines to the brainy fruit growers, and catch the early and late market for profitable results, and also a market that will never be glutted; you must make this your speciality, the foundation of your business in market poultry, in any part of the world, in fact the cockerels that are hatched in the glut of the season, are far better sorted and disposed of at whatever the price they bring at six weeks old, than take on the risk of rearing them to five and six months old, unless you are a farmer.

Market poultry will pay under these conditions, and it is not hard work. Plenty of men who cannot work hard, or have to give up business pursuits, or have retired and want something not too laborious to occupy their mind, with the attractions of a profit, can make poultry pay if they follow these lines, and want work in the utility field only. You would be far better having a holiday, and leave someone in charge just to collect eggs and feed your fowls, than hatching and rearing poultry for market purposes in the spring of the year.

If chicks in Australia are hatched in the middle of November till the end of December, the pullets will not lay collectively till they are nine months old. If they are hatched in March they will lay collectively at six and a-half months old, and be stronger birds with plenty of life and vigour. You save two months and a-half feed bill per bird, save a risk of several maladies, and have a better breed of

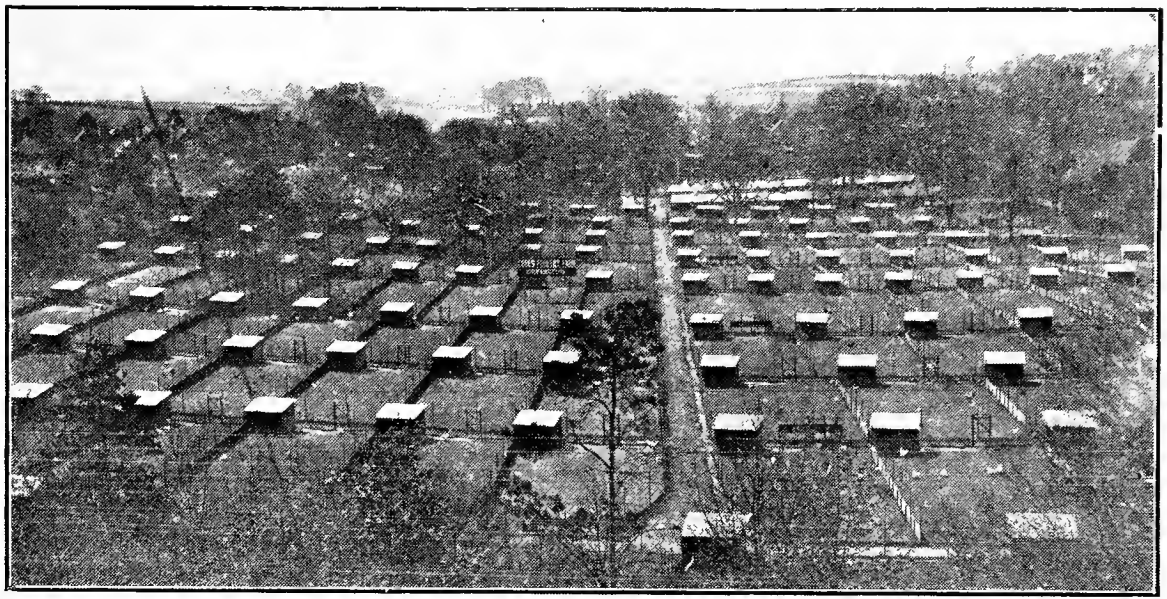


Photo by] **MR. W. H. COOK, ORPINGTON.** (See advertisement.) [*Hugh Langton, Orpington.*

The above photo was taken from a passing train on the main line of the South-Eastern Railway, and will give our readers an idea of what a portion of the Farm is like, as seen by the many thousands of passengers passing to and fro.

birds for utility purposes. Summer hatched chicks are no benefit to anyone, except food producers; the only breeders who can operate in these months are those with fresh ground and vegetable gardens, ground that has been used previously is absolutely useless for rearing summer chicks.

Breeders in America and England will have the same experience, for as long as the chicks are two months old before the strenuous weather comes, they are safe in England any time before the shortest day, as that is the commencement of the genuine winter months.

I do not recommend autumn hatched chicks as good birds to breed with their first season; the second season, if you have birds you wish to breed with, they will give just as good results as spring hatched birds. For breeding autumn hatched birds early spring hatched birds are used, as they are reliable in fertility, but you will be guided by the condition of your other birds.

The Intensive System in Australia.

THIS manner of keeping fowls has been brought prominently before the breeders during the last four or five years, and in the majority of cases it has acted splendidly.

There are really two forms of the intensive, viz., the superintensive and the ordinary intensive. The first is keeping six fowls in a "Noah's Ark," seven feet long by four feet wide, and in burying all the grain food in the ground so that the birds must scratch for every morsel for the night feed, although some reverse this and give the grain in the morning, with mash food at night; and I prefer this, as it is necessary to keep fowls on the move when shut up so closely during the day. Grit boxes, charcoal, and the water vessels are fixed up outside the coops. This is the American system of keeping poultry under the intensive method. It gives good results, especially in certain localities, that are not suitable for any other method. Personally, for utility purposes, I cannot recommend this concentrated form of keeping fowls when operating in numbers, as there is too much "knee drill," and during the wet weather, such as we have in Australia, the houses would be flooded while you were forking in the grain, as in some parts of Australia we have twelve inches of rain in as many hours.

Birds can be kept in good condition and perfectly healthy in a smaller space than this, as I have often kept six pullets in a house six feet by twenty-seven inches for four months, and have had grand results, but I was not operating in numbers. This is under the Australian method, introduced by me in 1901 in the first book

I published, under the heading of "How to Keep Fowls in Confinement," but, after, I altered it to the "Close Settlement System;" but in Australia it is now generally known as "The Manure Shedding System."

I brought it prominently before New Zealand in their Poultry Journal under an article, "3,000 Fowls to the Acre."

The six birds in the coop had been well grown under natural conditions, and then put in coop about three weeks before laying. The coop which had a wooden floor was covered with fresh horse manure procured direct from a clean stable to a depth of three or four inches, the whole of it was removed once a week and fresh manure inserted, as it was in the spring time it dried rapidly; had it been in the winter there would have been no necessity to remove this under a month. I had no perches, and the birds were examined by Government inspectors, and their verdict was, "They had never seen fowls in better health or condition, and for lustre of feathering a revelation." They, of course, had everything in grits, charcoal, green feed and clean water, all outside, which they ate as they required through the bars. Nearly all the show birds in Southern Australia are more or less on clean stable manure, but kept under the semi-intensive system.

Householder backyarders and gardeners can keep fowls for their own requirements under this *regime* with grand results, but it would be impossible in a large number of these houses to give them the necessary attention required, without you were looking for work. In England I don't think it is possible to procure stable manure such as we have, as all of our horses are bedded down on straw, but that is too dear in England, and only in a few isolated places could it be procured in any quantity, so straw, peat moss or some other form of litter would have to be used.

No one in Australia runs the intensive system on a large scale for utility purposes in "Noah's Arks." In America they do, but I fancy Australian breeders can teach Americans a few points in breeding and rearing profitable fowls, and genuine records in open competition under government supervision. Our best intensive breeders house the fowls under one, two or three roofs, they divide the place off into sections, and, as a rule, no more than from ten to twenty in a section. They are all bedded down on stable manure, and in some cases extra straw is mixed in with manure. The bottom of houses are asphalte or concrete. As no cockerels are in the pens the divisions are not generally so high as when cockerels are required to be used, but the males can be in every other pen without fear of any fights, if wanted. The manure is generally brought fresh to the poultry farm by market gardeners, free of charge, who have the privilege to take it away later on mixed with the fowl manure, and it is five times more valuable to them for gardening purposes. All of the breeding pens are run extensive or semi-extensive, and the chicks reared out in grass fields and paddocks. The feeding is similar to the superintensive, and the

watering worked on their own ideals, but my plan of running water is the best, controlling it from the one main tap. The conditions of intensive brings in a system of set rules for feeding., etc. and thus it is more drastic than extensive, as everything the bird require must be put in the pens. If ground is valuable (and you want to be near a city), three acres of ground will be sufficient for you to rear chicks and have all your house accommodation; thus you are nearer your market, and can have all the produce brought and taken away without payment of loss of time.

The South Australian Government ran a competition under both intensive and extensive, the latter won by over 200 eggs, but the manager stated that "the intensive system was splendid for wet and cold districts," but in this particular case the conditions were not equal; a better test will be held next year.

There is not so much risk of dysentery, or, in fact, any disease under the intensive system, as should any look off-colour, they are under your eye and the symptoms noticed.

You can feed under the dry mash system, or your own formula, only you must not jump about from one system of feeding to another, or you will only drive the birds into moult.

Personally, I prefer the semi-intensive system, even in Australia, with not less than 100 fowls in each pen.

Poultry manure from dropping boards is worth six shillings a sack at the tanneries, but its worth more than that in England.

Pedigree Marking for use in Scientific Rearing.

IN all cases of pedigree forms I prefer using aluminium rings with the number and year embossed on the outside, a lot are the other way, figures sunk inwards, and these are always more or less full of dirt, and if running out cause a loss of time.

For marking different strains simply nick half-circles out of ring with a clicker's punch, obtainable at any leather merchants.

You could cut out full circles, but the half on top of ring is preferred.

You can then use any combination you like, as for instance, one circle from No. 1 pen, two circles from No. 2, and so on. Toe punching can be used, but the rings are preferred; the coloured celluloid rings can always be used in conjunction for your own system.

The Intensive System in England.

THIS system for egg production is making great strides here, but the "Noah's Ark," as first introduced from America, has been discarded for utility farming as I predicted.

The floors in England, I find, must be wooden, and raised sufficiently off the ground to allow dogs or cats under to get vermin, such as rats. Concrete or asphalte draws the moisture in this humid atmosphere.

In all exposed positions this is easily the best system, providing you can obtain sufficient scratching litter at a fair price. Lucerne is now advertised in England, so suitable winter green can be procured, coupled with mangolds or turnips. Houses for 1,000 birds and upwards are the fashion, 100 birds taking up space 20 feet by 16 feet, but I prefer the birds in groups of twenty-five for intensive purposes: 100 feet by 16 feet holds 500 birds of the Mediterranean type. Larger birds require more space; personally, I would favour 25 feet by 16 feet for 100 pullets.

Droppings boards are used, and it seems to stop crowding and overheating better if the roosts come out at right angles from the wall, using an angle bracket on roost and inserting it in socket on wall.

All nests are better elevated so as to leave all the floor for scratching room. In some places as many as 400 trap nests were used, which entails a lot of labour. My system of selecting birds by structure and body formation, etc., coupled with the testing for number of eggs overnight, would save endless work and give better results, as birds that have been kept under the intensive system, no matter their records, are never the same when used out on extensive runs the following year as breeders.

I contend that all birds to be used as breeders should be kept under the extensive system; nevertheless, I would rather breed from birds kept under the intensive system under proper routine methods than from birds running out and kept in a lackadaisical manner. The great problem facing the breeders who intend keeping 4,000 or 5,000 under the intensive system is the rearing of chickens, and if they once allow their runs to become fowl sick, the end will soon come. Two lots of chickens must never follow one another on the same piece of ground, as the first six weeks of a chick's life is the keynote of success. If it is properly cared for during that period, it will almost rear itself afterwards.

Early fertility is more assured by birds under the intensive system, so I should prefer to keep breeding pens on the semi-intensive system during the winter months, but for utility purposes in England there is no need to hatch till March, as the early bred ones only tumble into moult.

I still favour the intensive system in winter, letting the birds out gradually to extensive as the summer approaches. But if the breeder requires the soil for rearing chickens, then by all means let them be kept in all the year round. I would rather do this in any case than let them have full liberty suddenly.

A great deal is written on the best bird to keep for intensive, and to-day I find that the White Leghorn of Australia is making great headway for intensive houses, and the introduction of Australian blood has worked wonders for egg production in England. Black Hamburghs, Campines, Black Leghorns and Anconas should all give equally good results if tested and bred accordingly, and it should make little difference whether Single or Rose-comb, but I give preference to the latter in cold climates.

American breeders have always been in the shop windows of the poultry world for egg production, but they must admit that Australian methods are far ahead, as in the contest this year birds from England are first, second, and third, and they are all more or less blended with blood procured from Australian breeders. The original blood was procured from America by Australian breeders, but our methods, helped by the wonderful climate, have out-distanced American records.

The same strains are freely used under the intensive system in Australia, but there is not a great difference in number of eggs laid. The principal factor is that the intensive system is more concentrated and avoids a lot of unnecessary walking, but breeders are making a success of both systems, as such a lot depends on the individuality of the man.

Respecting the intensive system, Mr. Tom Barron, England's most successful utility breeder, states that "In his district he found it unworkable. He had 400 pullets enclosed in a house 80 feet by 20 feet, bedded down on straw, but the birds gradually went back as the winter progressed. The mist, fog, and rain penetrated into the scratching litter; it sweated, became musty and unwholesome, although constantly stirred up. He gave them every attention, but gradually things went wrong, the laying ceased, the birds became listless, some died, and finally to save disaster he had to throw the doors open and let them have a certain run each day. He maintains that birds in his district must have a run out. It matters not whether they parade in slush and water, but a run outside they must have, if it is only for half an hour each day."

I should have liked to have seen the lot bedded down on horse manure, like I have suggested, put in dry. It will stand a wonderful lot of penetrating rain; unfortunately, straw manure is not obtainable. The whole affair thus concentrates itself in a nutshell.

The atmosphere of England in most districts is foggy, damp and humid, entirely different to the dry, cold atmospheres of America and Australia. In these places birds can be kept successfully on any form of litter.

Some of the breeders in the South of England emphatically state that they cannot keep litter dry; whether the fowls are few or many it makes no difference, as a week's penetrating fog and rain will drift through any opening and set up decomposition amongst the litter.

The locality you are in should have a trial before you launch out, having the experiment in the winter, but some winters are worse than others.

If buying pullets to operate under the intensive system, it makes little difference where they are procured if healthy, but for extensive purposes birds that have been bred on sandy soil feel the change keenly if moved into cold clay districts, and are liable to contract a chill on the first bleak day if exposed.

The system of semi-intensive seems to give best results in numbers, and that is my own experience as well.

I find Mr. Randolph Meech is a great believer in the intensive system. Certainly his place is situated in a more congenial climate than Lancashire, as it borders on the fringe of the English Channel.

He had 3,000 birds in one house and 1,500 in another, one of the houses being a two-decker. The birds are divided off into sections of twenty-five, as he does not believe in running more than that number together. They are all bedded down on straw, and that item alone costs £15, so that if it was not a success he is wasting a lot of money. There is little difference in detail methods, except that all have mash food at night.

He keeps all varieties of birds, from cross-bred upwards, but leans a little towards White Leghorns, but the Ancona comes in on fairly equal terms. He sells no birds, as his business is specialising in various styles of houses, and he does not wish to clash with his clients; he only keeps the birds on the intensive system as a practical object-lesson for England. He finds White Leghorn chicks hard to rear, which will be an eye-opener to Australian breeders, as they are the easiest we have. I informed him that oatmeal was too forcing in feather growth for White Leghorn chicks, and that the flight feathers of any that show rapid growth should be cut off, and that would relieve the tension, as no other chicks grow feather so rapidly. He admits that a certain percentage of dampness creeps in, but that continual stirring of litter helps to counteract it. Personally, I cannot see what difference it can make when *birds are kept on litter*, whether it is twenty-five in a house or 500, as the damp creeps in on the same proportion, and the fowls have more latitude and exercise to keep warm; the only thing is that the division of the house helps warmth, and this, I contend, is the secret in humid atmosphere districts; in any case, if operating with 100 fowls in one division or more, their sleeping quarters required to be sheltered, as the wind swirls around too much in a big space, unless it is controlled from the front.

Extensive System.

THIS practically means the ordinary methods of keeping poultry—that is, having a run for them during the day, with shelter and house accommodation at night. To the ordinary suburban householder who has a fair-sized yard—say, from 1,000 square feet yard room—and who are only keeping a few fowls to supply eggs for household requirements, there is little labour attached to this, while the details are limited, as, if the yard is in grass, the birds only need clean water, grit, cleanliness in their house, and the feeding.

Most people, who find this method pay well, will make up an approximate estimate of the profits from fowls, if so many more are kept on similar lines, and will have a rosy balance sheet, on paper, that will induce them to start the business proposition with great enthusiasm and hope.

Undoubtedly, they are not to blame; they may allow for discrepancies, allow for unforeseen circumstances, and allow for a reduction of profits, but having no experience with breeding birds or animals in large numbers, the real foundation—experience—is forgotten.

Nature balances up things in the breeding world by taking heavy penalties from inexperienced breeders, and she often showers her wrath on the experienced. It is fairly easy to breed a few kittens from one cat, or a litter of pups from one bitch, but procure a dozen cats or bitches, and you will not be long finding out the heavy mortalities experienced in breeding.

The great battle of life is a serious problem in breeding when operating in numbers. The penalties are often missed the first year, then, chiefly through the ground becoming more or less tainted unknown to you by germs and microbes creeping about, ready to fasten on the first weakling, which, if allowed to remain only a day or two, multiplies in an alarming way, and distemper in cats and dogs, dysentery and white cholera in chickens are in full swing, and your energy is undermined, your enthusiasm is smothered and your approximate balance sheet a dream. Distemper and skin diseases in dogs and cats carries off 50 per cent. of these before they reach maturity, and once you have had it in your yard or house, then, unless stringent precautions are adopted, the germs calmly wait for the next lot that comes along to start their capers again. If operating in large numbers, any bird showing signs of bowel trouble must be removed immediately right away to an isolated part, providing she is worth saving, but often the first loss is the best.

If operating with a large number of fowls, it certainly has been proved that six birds in a pen gives best results, but the cost of

fitting up houses and yards for 1,000 birds would extinguish all the profits. The Government Laying Competition pens cost £5 each, which means an outlay of £500 for houses and yards only, without the ground. Very few would risk that at once, preferring to work up as they go along.

The amount of ground required varies according to the soil, but, if a man knows his business, 500 fowls running together cost considerably less to house and yard, while the work is reduced to a minimum than if divided up. The egg yield will certainly be reduced, but an increased egg yield is nothing if you have to expend all the value in plant and labour to get it. A breeder can have 1,000 laying fowls accommodated in two houses and yards, while if six were kept in a pen he would require 170 separate pens. The cost of plant would be £500 more, which at 5 per cent. is worth

THE SEMI-EXTENSIVE HOUSE CAN BE USED EITHER WAY.
MR. J. B. MERRETT, CHRISTCHURCH, N.Z.
(See advertisement.)

£25 a year, without any depreciation in value. Then the labour involved in trotting in and out 170 pens three times a day would keep one man going by itself. The cost of extra labour, interest, and depreciation of plant would be worth £3 a week, so you could allow your big flocks to lay that much less. It is too monotonous for the average worker keeping a large number of fowls in small houses and yards. It saps the enthusiasm and perseverance of the best of workers, until they collapse altogether, or become hypochondrical. Granted they are characters, who are possessed of wonderful will power and enthusiasm; they may query my remarks, but I am not testing them, but the ordinary type of manhood. If you want six fowls in one yard by all means do so, but if you want to keep fowls free from detail work, pinpricks and worry, keep them

in larger numbers, from 100 up to 1,000 in one yard. I am speaking solely of utility, where only one or two breeds are kept.

In the illustration shown 400 layers are kept in this house, 100 ft. by 20 ft.; it is large enough to keep the fowls confined on all rough days during the winter, and is their sleeping quarters and play room on any ordinary day. The bottom of house is asphalted or concreted to keep out vermin, then the floor is covered 4 inches deep with sand, and plenty of litter, consisting of long straw manured from clean stables, ordinary straw, or any good litter is run on top of sand. Use plenty of it, and keep adding more as it is chopped up, then remove the lot twice a year. As shown in illustration, dropping boards are provided, which are cleaned every morning, and sanded after, not a long tiresome job. The charcoal and grit tins are kept replenished as required. Plenty of nests provided, the water is running continuously outside the building along spouting, holes are made in about a dozen places in the wall large enough for the fowls to put their heads out and drink. Indents are made in the spouting opposite the holes so that a certain amount of water is retained there; this spouting is protected from the sun's rays, and cleaned every three days with some disinfectant. Little's phenyle, or lime, plenty of green foods placed in wire receptacles provided, all grain buried in litter, and feed under dry or mash feeding. A run of one acre is wanted, two if you can give it, with a few shrubs or trees for shelter; this ground should be ploughed up once in two years. You will require to use your own judgment here, but remember that fresh ground never caused a disaster, it builds up the constitution, and strengthens the organs against germs and microbes. It is tainted ground that rings the funeral bell on all the failures, almost without exception. The fowls can be kept in the house while the ground is sweetening, and the replanting of grasses is going on.

In Australia the small yards have to be dug over, and the work is heavy, and they, unless the ground is of a sandy nature, never take the growth of grass even if re-sown, as in such yards the trampling of the fowls destroys the sward. Some utility plants are running up to 2,000 birds together, but the men who do so are keen experienced breeders who can pick out a fowl a bit off colour at a glance. No inexperienced breeder should keep more than 100 together, until he attains that privilege. It is like swimming, it comes all at once.

The extensive system of letting fowls out in all weathers is not so successful for utility purposes. They are not under control; it is right enough for small suburban yards, but for observation and best results, the combined shandygaff system is easily the best for pleasure and profit. Even for breeding high-class birds, the owners know the value of this method, as the majority of high-class breeders all use this system on a small scale, generally breeding pens, as the semi-confinement retains the lustre of

feather, and the birds are fed properly, instead of catch-as-catch-can, when the birds are continuously out of doors.

Profits from poultry can be made at each end, saving of labour, etc., of the building up of a better flock average. The saving of labour and selection of birds is far ahead of the one bird average, but selection of birds is the keynote to a successful man, as he saves labour and builds up a better flock average; and whether you are running on the extensive or intensive system the foundation of your stock is the keynote. The extensive system is all right when you have plenty of room and the rent or cost of land is cheap, but when ground is worth from £100 per acre upwards the outlay and interest are too costly.

It all depends whether you want suburban or country life. Fowls can be kept profitably both ways—the intensive for city and suburban, the extensive for the country, although the intensive system can be adopted in the country.

The breeding pens should always have a certain amount of liberty, if it is only in the evenings. All chicks should be reared on sweet ground till from five to six months old.

The extensive system entails more outlay on yards, more outlay on carriage of products, but very often the saving in price of grain counteracts these deficiencies.

Another profitable way to keep poultry under the extensive system in Australia is to avoid the expense of housing birds, and the cleaning out process. In certain districts of each Colony there are suitable places provided with natural tree shelter, or an old orchard that will suit your purpose. Such places are to be found in the Mallee districts of Victoria and South Australia, sheltered situations in New South Wales and Queensland, except in tropical parts, and there are ideal spots in Western Australia. The birds roost in the trees all the year round; the only buildings required are feed and egg house, incubator and brooder accommodation.

The flock average of eggs may be a bit less than under house accommodation, but the saving of labour and capital more than compensates for it. The yards would be big enough to carry 100 in each run, of about quarter of acre each, or it could be divided in two, and thus give each yard a spell, but two quarter acre yards would be even better, as they could always be kept pure. The guano dropped on the ground could be turned in with skim plough or harrows, and the birds soon become acclimatised to their conditions.

A system of watering to save labour could be adopted by pipes with a main cock tap, turned on slightly, so that a certain amount would trickle through all the time into the receptacles, which will be shaded. The tap in each yard to be about 18 inches from the ground, covered over, and if preferred the vessels could all be filled simultaneously in the mornings, and thus avoid the constant trickling, by turning the one main tap all the vessels would be filled at once. The warmer blooded breeds are more suitable for

these situations, such as Orpingtons, Langshans, Wyandottes, Rocks, Faverolles, Rhode Island Reds, Sussex, preferable, as they carry more feathering than the Mediterranean breeds.

The nests are placed handy so that the eggs can be procured from the outside, without the necessity of opening gates.

This system saves a lot of work and often a lot of sickness, as the birds have no draughts to contend against, the rain never hurts them, and if the situation is sheltered the wind can do little damage.

This is a cheap way to start utility farming, and if in an orchard the little fruit the fowls will damage is amply repaid by the guano and the destruction of insect life. For any person who must have country life in Australia this is well worth a trial, as the labour is not wearisome and the exercise of walking beneficial to the health; the outlay is small, and the returns, 10s. per hundred birds profit over expenses each week, and more if the birds are scientifically bred.

I cannot recommend the extensive system of running six fowls in a pen for private breeders to make a living out of utility birds. A certain number are necessary for breeding pens, but here again breeding pens should be built on lines suggested in "Scientific Breeding." Under the intensive system I can recommend six to ten birds in pens, providing three to four hundred birds are carried under the one roof, as the work is concentrated. In either case whatever plan is adopted it should not be altered until the fall of the year, as the different surroundings and environments will stop all laying after a week. If they are in full lay, a day's change will not hurt them from one system to the other, then revert back for three days; extend the time for the next change to a day and a-half, then back again for three days, extending the time each shift, and they will become accustomed to it without upsetting the egg yield. The breeding birds, and birds intended for breeding, should not be kept under the intensive system.

How to Breed One Breed from Three.

SOME people who lack individuality or originality are always crying out for fresh blood, and they run away with the idea that to produce eggs or stamina in birds it is imperative to bring in an outcross of different blood to keep up the constitutional vigour to concert pitch.

All the world's records that stand to-day are the result of inbreeding, as I know that an outcross had not been used for seven years. In the intelligent breeder's hands it is rearing and judicious mating that work the oracle, but it is only constant study, supervision, and a superabundance of will power to combat the various details that keep the breeders forging ahead. Neglect or become lackadaisical in your ways and methods, and your optimistic outlook will become a phantom and a myth.

Maybe the majority of my readers have neither the time nor the inclination to wade into the mass of details required for breeding on sound and scientific principles; so to prevent a useless mass of jetsam and flotsam, or, in other words, the blending of birds that will only show you a number of mongrelised nondescripts, the mating laid down here will give you a splendid outcross, and a uniformity of type and colour, that will always look superior to the ordinary matings of pure breds for crossing purposes.

The head of the pen is a White Orpington cock or cockerel, mated to White Wyandotte and White Rock females; either one or both breeds can be used in the pen, but if Rocks are used procure them as low on leg as possible. The result of this outcross will be eighty per cent. of White Orpingtons, and the balance will follow the leg colouring of the mothers, but of course still white in feather. Here you have a grand cross, and in some respects an improvement on the pure bred White Orpington in colour, as up to the present we have not the proper standard albino feathering in White Orpingtons, like we have it on White Wyandottes or Rocks. Breeders of repute, if operating with White Orpingtons, will, if using this cross, select only low-set White Wyandotte hens with plenty of front, and they will breed a number of birds fit for any show in both cockerels and pullets. Following up this outcross, if it is intended to keep to the type of the White Orpington, it is preferable to use the pullets mated to a pure bred White Orpington cock to fix the leg colour; you can also breed with the cockerels mated with a pure strain of White Orpington pullets, but here you will breed a few with yellow legs, but only a small percentage. It is not wise to mate the brothers and sisters together, as the stock would throw about even number of white and yellow legs. Under this simple plan any person can bring in an outcross for three or

four years, and in that time have a pure breed manufactured that will give you a splendid fowl for table, a strong vigorous layer of lovely tinted eggs, and a bird full of vigour and profit, especially if you have selected the breeders for egg production on the system laid down in that article.

Of course this could be turned upside down, and a White Wyandotte cockerel used on White Orpington females, but in this case fully eighty per cent. of the chicks would have yellow legs, as the influence of leg colour comes from the cock. The only breeds that do not follow on these lines are Dorkings and Hamburgs. These breeds are so old and the detail points so fixed, that if yellow leg males are mated with them, the progeny will follow the Dorking or Hamburgh hens in colour of leg, except in a few cases.

Three varieties of one breed can also be bred from one pen of birds by operating with Wyandottes, in fact four or five varieties would be possible to produce from the one mating if anyone wanted variety. Mate a Silver Wyandotte cockerel with a Gold, Columbian, Silver Pencil, White, and Partridge females, and you will have an interesting study with the progeny. They will all be pure bred birds, and the speculation on the various colours will satisfy any gambler who wishes for some antidote to stop his craving for backing horses, as he can back his opinion against Nature while the eggs are incubating without upsetting the *regime* of his household. Brown Leghorn cocks mated with White Leghorn females will give you Leghorns pure, but of a colour known as Pile, and also give you the outcross.

Single Comb White or Brown Leghorns can be mated with Rose Combs, using the male bird with Rose Comb, if they are wanted or *vice versa*. Thus the ruddy coloured females of America can be mated with the pullet breeding strains of England and Australia, if the proper coloured females are required of a soft shade in colour. White Leghorns hold the record for egg laying in Australia, but other breeds could soon be bred to rival them by mating Minorca cockerels on White Leghorn females, the progeny would immediately show proficiency as egg producers, besides increasing the size of eggs (a great weakness in our Leghorn), and the chicks would chiefly follow the Minorca in colour. In any case do not use the White Leghorn cockerel in mating for other breeds, as the progeny is fully eighty per cent. white in colour, except Hamburghs.

One of the best crosses I ever used for improving both the breed, egg production and size of egg, was a Black Minorca cockerel on Black Hamburgh females. Although in this instance I used the Single Comb Minorca cockerel, the Rose Comb of the Hamburgh was dominant over the Single Comb, and nearly all the chickens were "Rose Combs."

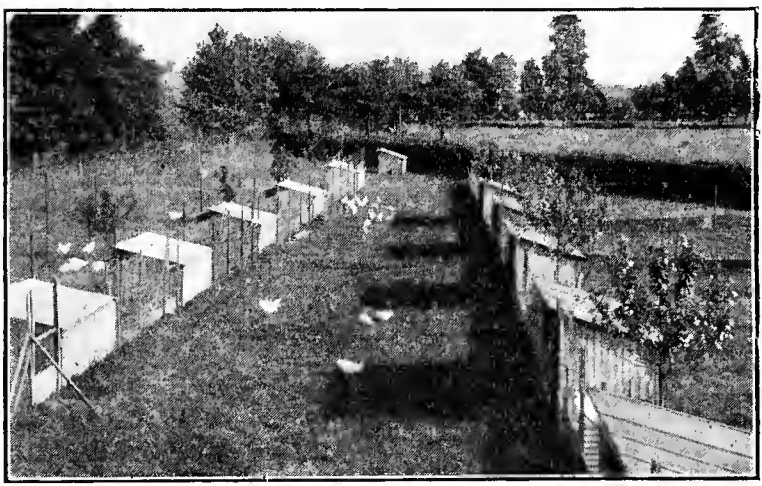
Mating one of the sons back with the mother I produced the finest Black Hamburghs, both male and female, ever seen for colour and tail feathering, while the lobes were a revelation. All of

the Hamburgh fanciers who saw the birds marvelled at the wonderful lobes, and some thought they had been tampered with to produce the width, shape, and texture.

The whole secret rested with the selection of the Minorca male bird, English in lobe but selected for quality and shape, instead of size and length. Hamburghs want round lobes; so if any Hamburgh breeders wish to follow (I haven't held anything back), they can improve the bird in every way by an outcross, and also bring the Hamburgh forward into popularity.

Rhode Island Reds on Red Sussex is another cross for uniformity.

Old English Game on Brown Leghorns for improving egg production.



MR. H. GUNN'S (GLOUCESTER) WHITE WYANDOTTE BREEDING PENS.

The Orpington family are also a nice recreation and pastime to experiment with. Mating Black Orpington cocks on white hens gives nearly all black chicks, and *vice versa* a proportion of white chicks, but in this cross, as the Orpington is only a breed of recent origin, the leg colour is a bit mixed in the offspring. If the results of these crosses are mated with Spangled or Jubilee Orpingtons, you would have a nice mixture to experiment with the following season as some of them are bound to be Cuckoo marked, one of the commonest forms of Nature reverting in colour when indiscriminate mixing of colour is used; thus in nearly all clusters of mongrelised fowls there are always some with cuckoo markings. And as this colour is dominant, it is comparatively easy to fix, so if anyone

wants variety, the Cuckoo Orpington is within reach after this couple of crosses. If scientific breeders were operating, I should advise them to look thoroughly at the chickens of the first cross, and see if they show any tendency to Cuckoo markings, if so use them for breeders if you want Cuckoo.

Cuckoo Wyandottes would also be bred from the matings I advised.

I understand that the production of the Blue Orpington resulted by crossing Black Orpington cocks on White Orpington hens, the cockerels from this mating bred with Spangled Orpington pullets, and one or two Blues bred from them; these cockerels were bred back to the first cross of Black and White Orpingtons, and the results were more Blues, and with them it became easy to fix the colour.

Buff Leghorns can be bred to Buff Orpingtons if more size is required. Buff Orpingtons deep in colour mated to Rhode Island Red females for producing "Red Orpingtons." Red Sussex females could also be used, but the trouble in store for Red Orpingtons is that the unscrupulous dealer would palm off any degenerate specimen of a Red Sussex as a Red Orpington.

Anconas can be crossed with Spangled Orpingtons for size, or *vice versa* for egg production and utility, and still breed uniform in colour, using the Ancona male for preference, as they are dominant over Spangled Orpingtons. Silver Wyandottes crossed with Andalusians improves the size of egg in Wyandottes, and the lacing is simply grand on the feathers. Duckwing Leghorns on Silver Grey Dorkings is a good utility cross, and again the colours are blending. Blue Leghorns on Blue Wyandottes or Andalusians is still another way, but I am not a believer in crossing fowls only for experimental purposes. Only these crosses I have mentioned are the next of kin, in chancery, and if you will use this way of breeding to save working out breeding problems, then any of these crosses will give you all you want, without any fastidious sentiment in inbreeding, as a conglomeration of nondescripts, whether in cattle, sheep or poultry, is always an eyesore, always a category of the character of the breeder, and always an unnecessary waste of disorganised breeding.

Breeding Hints.

SCIENTIFIC breeders never mate perfection to perfection. Thus, for example, if breeding, shall I say, Columbian Wyandottes, don't mate two light clean back birds together, otherwise away goes your striping; one of the birds must have an overplus of colour or pigment. In breeding Buff Orpingtons, if the cock is extra sound in flights and tail, use a female showing a peppery tail, or *vice versa*. In breeding Reds similar conditions prevail, and in all parti-coloured or marked breeds remember it is hard to hold certain colour, and Nature robs colour very quickly, especially if your matings are astray or not blending. Line breeding is the keynote of success, coupled with scientific breeding and rearing; but then a true breeder never lets line breeding monopolise his own ideals, as true success is never obtained unless line breeding and his own interpretations of successful matings are running in double harness. Your brain theory and eye should be able to counteract the vagaries even of line breeding, but brainy breeding without line breeding only lasts as long as your luck is in. It generally ends suddenly, and once it does it is hard to put the atoms together again.

Leg colour generally comes from the male bird, and also the character of comb. A white-legged male mated over yellow-legged females will predominate, and *vice versa*. Black-legged males are dominant over either White or Yellow, more particularly in females, and the longest feathered birds are generally white in colour, although it is not so noticeable in fowls as it is in dogs or cats. Black cats or dogs never have as long a coat as parti-coloured or white ones, as the sun contracts its heat on black, and the animals could not stand the length of fur as the other. Black sheep are similar, and we have the same in fowls for length of feather, not fluffiness; the white feathered breeds can stand more of it in hot districts. It seems strange that White Orpingtons with white legs and skins are so hard to breed a "stay white" in colour, while yellow-legged Leghorns, Rocks, and Wyandottes are no trouble. What is the reason? It is this, that the pigmentation or sap of feather is filtered through the pink shafts of feathers on White Wyandottes or Rocks; but as White Orpingtons have no pink shafting in undercolour, therefore the sap runs through unchecked, and the intermingling of rain or sun sets up chemical changes, and until White Orpingtons are bred with the pink shaft of feather in undercolour, they will not be "stay white" when exposed to weather conditions.

To secure more colour in the plumage of Black Orpingtons, and other breeds requiring green sheen, the feeding of sulphur before the last feathering is recommended. Start with a salt

spoonful a day and increase the dose up to a teaspoonful, to be given in mash. As this is done in the late summer or early autumn, there is little risk of birds catching cold. It is in the spring that we have fickle weather.

The peculiarities of breeds that require double mating is often a wonderment to old breeders. They may understand the matings of their own birds, but all astray if mating up another breeder's stock of which they have had no experience with.

Perhaps the best vivid illustrations of the vagaries of double mating exists in Rouen Ducks. This breed being laced and bred for certain colours is generally double-mated in duck or drake breeding for show purposes. In several instances the direct negative has been bred a champion duck from birds mated for producing high-class drakes, and *vice versa*. Some breeders have been able to produce show birds in both sexes from single matings; others, again, have tried in all sorts of ways, even introducing foreign blood to breed ducks from a pen noted for drake breeding, but without success. It simply proves that certain strains are dominant over others. Barred Plymouth Rocks are another peculiar breed. They can be bred either from single or double mated pens, but the majority are bred double-mated. The wonderful puzzle is that in seven cases out of ten the scientific matings are beaten by indiscriminate matings, but of course possessing the same blood lines; it proves that Plymouth Rocks have a peculiar characteristic individuality over other breeds, as the veriest novice operating with the same blood lines as an experienced and scientific breeder has, "providing he knows how to feed," almost the same chance of breeding show birds from a trio worth from three to five guineas as the breeder who has a pen valued from fifty to hundred pounds. I know of no other breed that possesses this trait.

In Silver, Gold, and Partridge Wyandottes it is very seldom that the inexperienced can have a hope of beating the scientific breeder with a valuable pen of birds.

In Whites the novice has a chance, as so much depends on rearing, but they are not a double-mated breed.

In Rhode Island Red the novice has a big opportunity, for the blood lines of this breed have not been mastered by any one breeder, nor is it likely to be, for some breeders are using a smutty undercolour with good results, while others can only produce decent birds from high-grade show stock. It all depends on the dominant blood lines on the male side more than the female; in some blood lines to produce the black tails smutty undercolour is necessary, while in others smutty undercolour will produce an excess of colour on the wings of male birds, as this is the particular spot in all breeds that carries an excess of colour, but in red coloured fowls it is more noticeable than any other colour.

Rhode Island Reds, Dorkings, Old English Game and Campines are the only breeds that should be free from striping in the hackles of males, but it is hard to produce ideal. The

females are striped, but it is almost as difficult to produce a hackle without striping as to breed one with perfect striping in males.

The intensive scientific principles of the hereditary laws of breeding, according to Mendel, are a fascinating pursuit for one who likes the thrill of working out the marvellous cross-fertilization or hybridization of Nature's wonderful mysteries.

So much is hidden under the surface, so much is embodied in blood lines, and so much can be transmogrified from two birds of entirely opposite breeds, in size, feathering, utility and fundamental points, that one wonders whether it is a freak or a physiological mystery that is revealed to show the human race a concrete lesson in the existence of a higher power. The technical names surrounding the phraseology introduced by Mendel would not be readily understood by the majority of my readers, so I will dispense with them and try and give the main principles of Mendelism without resorting to the compound pronunciations, as a superabundance of acrostic metaphor does not help the uninitiated to work out the combination of breeding laws.

The whole theory of Mendel is supposed to be concentrated in certain characteristics of crossing and the embodiment of certain traits of offshoots, generally called sports. Personally, I see no advantage in utilising sports for any progressive purposes. It simply gives us a practical illustration of the dominant power of blood lines, bringing the progeny of sports back to the original colours of the grandparents, etc. The principal object lesson taught is in trying to manufacture a new breed, or in bringing in another breed to transmit some special qualification you desire to attain.

I have already shown that the albino feathering of the White Wyandotte can be transmitted to the White Orpington, and, by selection, become fixed, but even in "stay white" feathering some strains work on different lines to others. I have seen some strains in which the feathers even on the top of the wings were devoid of sap or canary colouring, while in other strains the sap vanished as the bird matured, and finished up a "stay white." We will suppose a breeder wishes to introduce a new breed, which I will call a Silver Pencilled Leghorn, as they have never been shown yet, providing he knew the ordinary breeding laws and had a certain intuition to tell dominant points, he should proceed on the following lines :—

The two breeds I should select to work out this experiment would be a Silver Duckwing Leghorn cockerel on to a Silver Pencilled Wyandotte hen. I should take into consideration that the following were dominant characteristics. The Leghorn comb and head points over the Wyandotte, because, in the first place, the male bird has a strong tendency in fixing this particular point,

and also that being a much older breed, it is dominant over the rose comb of the Wyandotte.

The type and carriage of the Leghorn would also be dominant, but the colour and pencilling of the feathering would follow the Wyandotte, for that particular pencilling was originally from the Brahma, one of the oldest of domesticated breeds, and this particular colouring had already been through the laws of evolution and transmitted to the Wyandotte, and it would again assert its superiority over the Leghorn markings.

I have not experimented with this breed on these lines personally. This is practically theory, but from my knowledge of the breeding laws I have already been successful with, I feel positive that this would be a success with any experienced breeder.

We will suppose you have twenty-four chicks from this pair of birds. According to Mendel law (but discrepancies occur—it is really only approximate) eight should follow the male, eight the female, and eight should be a glorified-mixture of the original jungle fowl. In this mating I have allowed certain dominant features, hence the proportion of wasters would be reduced, and the other percentage would also be altered. Had I mated up two breeds of practically clean outcrosses in variety, type, and colour, the one-third theory of Mendel would be better illustrated. After the first cross the whole success is in selection, mating both ways back on to the parents, taking a particularly good pencilled female and putting it back with the father, and putting a cockerel back to the mother, and then working the progeny of these two matings together, of course selecting the ones suitable to transmit your requirements.

A Columbian Leghorn could be introduced by breeding a White Leghorn on Columbian Wyandotte female, but here you would have a little more trouble, as a White Leghorn cockerel is dominant in colour up to 95 per cent. over any breed. They have been domesticated for hundreds of years, and that colour has been fixed for generations. Nevertheless, by using females with an excess of colour, even supposing you were only working with a cockerel bred from this mating back on to another female of different blood, it can be done if you desire to introduce such a breed.

Silver Pencilled Indian Game could be manufactured by mating rich-coloured Silver Pencilled Wyandotte males on to Indian females.

Almost any particular shade of feathering you like to introduce can be obtained by working under the laws of Mendel and selection.

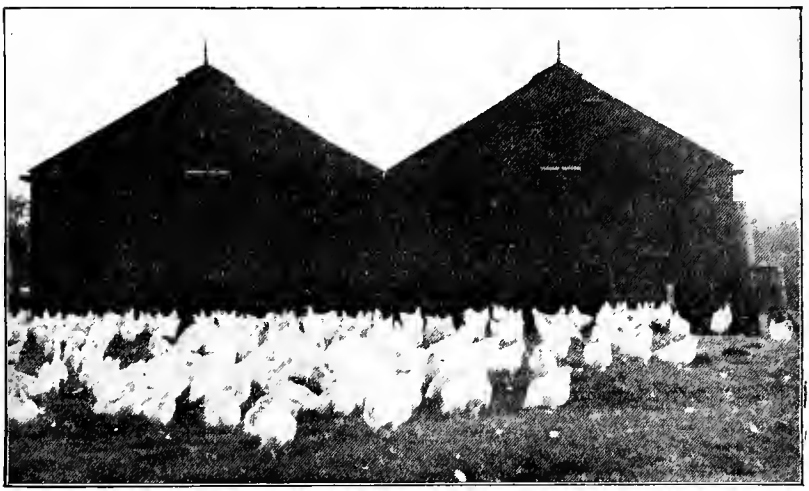
In the year 1909 I introduced a Yellow Magpie cock on to a Scandaroon hen, as I wished to procure more length of face and leg in the Magpie, as the type of the bird had been altered.

The Scandaroon is a down-faced pigeon, and the Magpie has a straight outlook, but such is the wonderful power of male birds to

transmit head points that not one of the first crosses showed any inclination to be down-faced. The markings were erratic, but the worst feature was the eye—they all had Scandaroon eyes.

On the second cross, mating back to the parents, I shortened the beak and leg a little, but some were nearly correct in markings, but the Scandaroon eyes still remained dominant. The third cross gave me one bird with pearl eyes, and another with one pearl eye, and the fourth cross (1912 bred) won both first prizes in black and yellow classes at Melbourne Show, 1913.

They had grand heads, eyes, length of face, no pinching, and good carriage and markings, so here we have certain points required fixed in the fourth generation by selection and Mendel law. Some



MR. T. BARRON'S SCRATCHING HOUSE.

male birds possess a wonderful power of transmitting good points on to the progeny with any female you care to mate them with.

The wonderful success of the well-known Padman Leghorns of Australia is a vivid illustration, and his stock to-day is the principal foundation used by the main body of breeders operating with the Utility Leghorns, but that class of birds are not born every day. We see the same in horses. Musket, New Zealand's wonderful sire, never bred a waster; the mare made little difference, as long as she had some sort of breeding.

One of these cock birds is worth five years' trapnesting, as he would be a gold mine in bringing up a flock average; of course he must be well bred, although from ordinary average strain, but it is only a few that are lucky enough to be able to secure this class. Some males breed grand the first year, and go all to pieces in the

second, even when mated with the same females. Why is this? Constitutional or hereditary.

Hardly the latter, because the owner never had birds to breed such wonderful stock, either in the first, second or third year; but it is rarely that if the stock is poor the first year's mating, it improves on the second year if mated the same way. It may not be constitution, but just a loss of the physiological fertilization that blended so well on the first season's operations. This applies to both utility and show breeders.

The principal breeds that have dominant points are: Black Hamburghs in comb, feathering and leg colour, over all the breeds manufactured during the last fifteen years. Dorkings the same, in fact the colour and leg points are superdominant over almost any breed. Colour and leg feathering in the Dark Brahma; white feathering and legs in White Cochins over all made breeds. Leghorns ditto in colouring of feathering and comb, the only exceptions when up against colours of Brahmas, Langshans, and Dorkings that have been transmitted into new breeds. Thus we have Dorkings, Brahmas, Cochins, Hamburghs, Leghorns and Game dominant in their own particular points over made breeds.

If two made breeds of recent origin are crossed, the progeny will follow the male for head and leg points, and the female for colour in seventy-five per cent. of the chicks.

In selecting birds for breeding high class utility stock, the highest average female is seldom the best breeder. It is preferable to use sisters to this bird, especially if they have a little more body and barrel room and are bigger in bone.

We often hear of a 300-egg female, but it is very rarely that she breeds similar ones, and if persisted in, especially if inbred, you are courting disaster. If on a large plant, keep your progeny from each male separate; you will find out that one is the mascot, and his hens may be sixty or seventy eggs a year less than some of the others. Breeding for high class results from utility birds is so strenuous in Australia, that by injudicious selection of matings the egg average drops considerably, even when working on the same lines of blood. There are factors unseen and unknown in climatic conditions for your district, which upsets all your experience and scientific knowledge. Egg averages rise and fall; fowls are not machines, but have organic constitutions controlled by physiological elements, breeding, feeding, and soil.

Judging.

THE art of judging poultry is full of vagaries and turmoils, and the personality of a judge often brings him into public favour, as it is often a question of personality against proficiency.

It is very rarely that a poultry judge is gifted with all the fundamental points necessary for the details required in judging a show. You may be the finest judge on earth, yet the moment you are tackled by an exhibitor, lack the tact of explaining your awards; you may be the most conscientious judge on earth, yet you will, by want of tact, leave impressions that develop into your undoing.

You may have judged the class splendidly, yet unfortunately cut out birds that belonged to a narrow-minded president, committeeman, or secretary, and he possessing a magnetic personality has such a following, that you are turned down the following year. Again, no matter how careful you are in noticing the disqualification points of certain breeds, there comes a time at some show when you will fall, and unless you are lucky, dig your own grave as a judge at that show in future. Judging fowls is a fascinating pursuit to some individuals, to others it has no attraction. Some breeders and keen experts lack self-confidence to judge at shows, others have a superabundance of confidence and only ordinary ability.

Breeders can generally select the best specimens in their own yard to show, because they see them daily, and their opinion is often verified by other fanciers, but the judging of a hot class in a limited time shatters their abilities, especially when they are conscious of critics and their sarcastic remarks. The new judge often has a trying time, as his opinions have often been ventilated with other fanciers what he would do, but when he is operating his opinions seem to drift and float away as a vanishing phantom as he put up birds he was condemning, and shelter from the storm behind the judging of older judges. Again, it is very hard for some judges to keep to a certain type of bird, and his judging looks spasmodic and often hysterical. The new beginner often passes birds for want of proficiency, and the next minute will turn round in a class and put up a bird with three or four disqualification points on it, because he had had no experience with that particular breed.

To a judge large classes are the easiest, because generally two or three specimens stand away from the others. It is in a class of a dozen medium birds, all more or less faulty, that he fails, and with keen exhibitors wanting to know why.

Again, there are birds, such as Orpingtons, that will not show

the first day of judging, but improve out of all knowledge on the second day. The owner arrives on that day, and your lame excuse, "would not show itself," is taken with a grain of salt, and it generally means a free drink to the exhibitor if he starts to kick up a dust. Judges are sensitive collectively.

I have seen an expert breeder on certain fowls judging a class of his specialities for the first time, and although he had only seven birds to judge, took twenty-five minutes over them, then told the steward he would have to leave the class till they settled down. His knowledge, experience, and vision all dancing a jig, he was under a magnetic influence, in a lather of nervousness, and the strain on his system was worse than the loss of sleep for twenty-four hours. He would have judged the same fowls by one look in his own yard, but the eyes of the exhibitor were on him while judging, or the comments of sarcastic tongues were singing in his ears. He lost confidence, and with that all his experience.

Generally the loud-voiced, disappointed exhibitor is the meekest of judges, a complete reversal of form. He really has no explanation to make as a judge, except that he is "sorry," but knows everything when exhibiting.

Beware of the exhibitor who come flattering and smoodging over your abilities as a judge because he has secured the win. He is an extremist, and is your bitterest foe the following year if you put him down.

If judging, and you are approached for your reason why you put out certain birds, never give it right away, "unless it is a complete waster." Ask the exhibitor where his bird, in his opinion, beats the winner. He is generally non-plussed, and while you are drawing him out you have time to notice all the blemishes of his bird. It will save you many an argument and many an exhibition of temper.

Exhibitors are often satisfied they are beaten, but want to know the faults of their birds. If you are not sure of your man, ask him what he considers the good points of his bird. Never be hasty, always be courteous, use your tact, but if you lack that, fall back on your personality. But one ounce of tact is often worth a ton of personality, that is why I give judges these hints.

Judging in England and Australia is chiefly done by comparison, and judges generally verify one another, not through favouritism or the inclination to follow the awards of other judges, but because judges who keep up to date follow similar fashions of the standard that are prevailing. The standards do not alter, but the interpretation varies, and judges of Australia would be lost in England under certain breeds, and judges of England would put up our so-called wasters of Australia. In America the same trouble exists; the duffers of England can win in America, and *vice versâ*. Australia and England are under the one standard, but there is a wide gulf in the interpretation. Comparison judging is certainly not quite as good as score

card judging, still, considering the time required for score card judging, the former takes preference, as time is money, and a day's expenses saved in a big hall is the profit of the show. There is not much satisfaction in scoring 95 with your bird if you cannot see how the winner scores 97. You are in the same boat as the fancier who shows under the comparison judge—want an interview.

It is certainly better for the public to see on the cards that the winner has secured the highest number of points, but as they have no conception of the points, the satisfaction is only imaginary.

I introduced a form of standard card judging that was far ahead of the score card, and a long way ahead of comparison judging, but it can only be used by specialist judges, and then only on a limited number of birds.

Under comparison, judging a bird a minute in good competition is fairly fast; in extra keen competition, forty an hour; in small classes, or extra large classes, 100 an hour can be done, or if the majority of the birds have been under the same judge before. I have judged 934 in six hours, Pigeons and Poultry, but that was exceptional. I have seen 200 odd judged in an hour, but have not seen the judge after.

Under my standard card judging, forty to fifty birds can be done in an hour, and very near the same proportion under score card judging, perhaps less—thirty an hour. If judging at specialist shows, I always use a modified edition of the standard, as I mark on all the cards where each bird failed or won, and I have rarely had to answer a question afterwards.

When a judge writes on a card his explanation for throwing a bird out he must have confidence and experience, and a keen inception of standard points, as all the brains and experience of critics are at concert-pitch to overthrow his judgment, if possible.

Most judges prefer comparison judging. Mine is the same, with this difference: that you must examine each bird carefully, as in jotting down your remarks, the bird must come under your eye to ascertain its blemishes; while in comparison judging, often a bird is ruined altogether, as at the physiological moment it lacked type or appeared a duffer.

There is not much satisfaction to the exhibitor who brings his bird into condition after months of patient details, pays from 3s. to 6s. fee, besides travelling expenses, if unable to attend. He is lucky to get his bird back alive and well, but he would appreciate a card stating why in the judge's opinion he was beaten.

True, exhibitors can always drop a line to the secretary telling him to hand the letter to the judge after he has finished, and they will receive his verdict, providing the secretary remembers; but he is a busy man, and has a lot of details on his mind.

The card, as given on page 92, I introduced received flattering encouragement from the Poultry Press of Australia. The only ones who depreciated the idea were some of the existing judges,

who were lackadaisical, lacked confidence or ability. Without wishing to appear egotistical, I can emphatically state that the exhibitors have appreciated my judging. Certainly, one or two old hands rather resent a too vivid explanation of faults on their birds, but it is never necessary to use any drastic remarks; there is no need to hurt any of their feelings.

WYANDOTTE.

American Score Card.

Shape	1½
Weight	1
Condition	—
Comb	1¼
Eye	—
Wattle and ear-lobe	½
Neck	1½
Back	1
Tail	—
Wing	½
Breast	1
Fluff	—
Legs and toes	—
Score	91¾

Possible points, 100.

STANDARD COMMENT CARD.

Introduced by Geo. Woodward.

Comb: Good shape, but no work
Eye: Both good
Lobes: One good, other folded
Neck and hackle: Nice colour, but weak in strips
Saddle hackle: Same
Top colour: Good
Wing bar: Well laced
Lacing: Well spaced and regular
Type: Bird not balanced
Fluff: Good
Legs: Good
Tail: Excellent
Size: Small
Condition: Good
Remarks: Very fair bird. Fails in size and type.

Beaten exhibitors are always sure of sympathy from fellow-sufferers and their friends, if they look for it. Sympathy costs nothing, and judges have to put up with the hereditary weakness in the human race—sympathy for the vanquished or the sufferer. If a judge is inclined to be nervous at his début, it is just as well to purchase a packet or two of chewing gum; it will help to occupy

the mind and relieve the pressure of your embarrassment. Go straight, but stand on your dignity if tackled on the placing of your awards. If you have made a mistake, do not admit it, or your reputation vanishes. A judge, like a doctor, must stand on the rock. Try to please everybody, and you please nobody; but leave judging alone unless you are sure of your ability.

Which is Easier to Breed— Solid Coloured or Marked Fowls?

THERE are a few breeds of fowls that breed to their standard ideals, better than others. Andalusians, if selected with any care, are one of the easiest to breed to standard requirements. The fundamental characteristics of this peculiar fowl are in the (shall I say) idiosyncrasies of colours in chicks thrown from matings even of the best quality. It is the only standard breed of fowl that never varies producing tricoloured chicks, as from all matings, if fifty chickens are hatched you will have a conglomeration of colours, some blue, some black, others white with black specks.

Often in breeding the laws of Nature play some peculiar and interesting studies, as invariably I have found in this breed, if the black and white sports are kept on, they rarely attain the same qualities either in type, outline or head points, but they are generally better layers.

The Blue chicks collectively are ahead of their sport sisters and brothers, although it is questionable whether they should be called sports. In no other breed will you see such direct negative differences in quality, the sport fails almost everywhere, with perhaps the exception of type and carriage, and they rarely grow the same size even if treated in the same way.

Why does Nature select this particular breed of fowl to throw all the good points and symbolic grandeur on the Blue chick, and all the deficiencies on the sport that makes it look so grotesque? It would be appreciated by breeders of all other breeds if they would breed on similar lines, concentrate all the good points in one bird, and rob one, or all the other chicks, to build the one almost up to perfection.

I have had similar results in Silver Wyandottes in isolated instances, but I have seen repeated cases in Andalusians, and here again this breed scores as they retain their grandeur in adult

plumage; in fact, they are superior in feather, markings, lustre and type, especially the females as they become older.

Probably most readers know that the sports of Andalusians can be mated together, black cockerel on white sport pullets, and that they will revert and breed blues, but the quality of the correct mating is lost, they are only a shadow compared to the chicks bred from correct matings. Granted that the sports lacked standard points, still in line bred birds a throw back of good quality even from faulty matings is often met with; but so far I have not seen it in Andalusian sports.

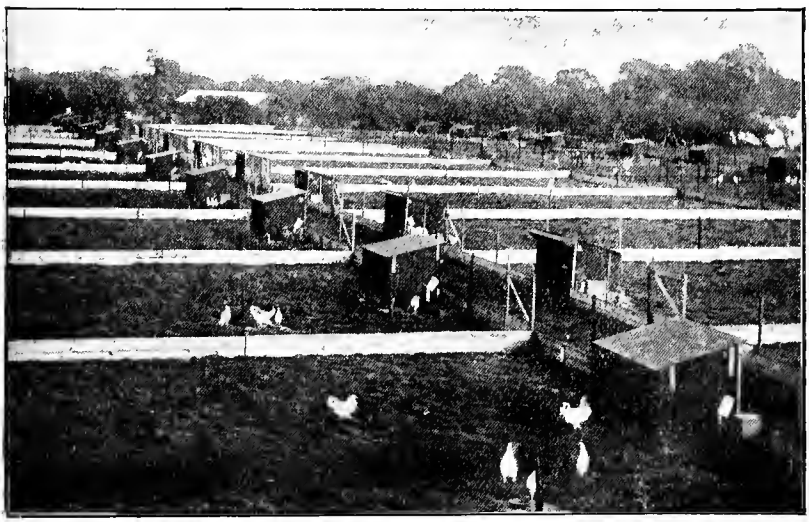
Mendel is credited with finding out this peculiar trait in Andalusians, that the sports could be bred together and the chicks would revert and come blue, but as far as I am concerned I and others in Australia knew it a long while before we heard of Mendel, but we did not attach any particular importance to it, as I had similar results in Silver Wyandottes. I bred white sports back on Silvers, and bred Silver chicks from them, the only difference was that I bred a sport on to a pure bird, while in Andalusians both colours were sports; but any experimental breeder knows of the dominant power in lines of blood to reproduce back to their parents or grandparents, and breeders only have to experiment with Single and Rose Comb breeds to find this out.

In 1904 Rose Comb Brown Leghorns attracted a lot of attention by their laying qualities, they had been recently introduced to Australia from America, and as classes were provided for this new breed a few were shown, but the colour of American Brown Leghorn pullets was rusty and bricky, and did not conform to our standard. I immediately bought a Rose Comb Brown Leghorn cockerel, and mated him with very light Single Comb exhibition pullets, knowing that the Rose Comb was dominant. Three-fourths of the chicks had Rose Combs, and not only did the mating transmit the comb, but extra size coupled with laying qualities as well; for I entered six birds at the Dookie College Competition, and finished up fifth out of fifty pens, and the sisters won at every show in Australia where they were shown, and the same progeny are winning to-day.

The one mating here transmitted colour, rose combs, type, size and egg producing qualities, etc. This will give readers an object lesson on the importance of a healthy, vigorous, line-bred male bird, his wonderful reproducing powers when mated with special birds, while if mated with ordinary specimens the result would be a vivid object lesson.

Again the dark colour of American Leghorns is dominant over the softer shades of the British colouring, as the original colour of fowls was of similar hue, and it means three line bred matings to secure the British shade; but only one, or at the most two, to secure the American shade if you mated your pen correctly. One mating will make a considerable difference either way, but if the correct tint of colour is wanted, two or three matings are needed.

Andalusians stand in a class all their own, but Indian Game are noted for their power of breeding true; they do not throw sports, but they breed a wonderful uniform chick for colouring and type collectively if the matings are blending, and often four or six out of one sitting are high-class show birds. No other breed are more uniform in quality, type, colour, and markings. Certainly the show type are not great layers, in fact, a couple of dozen eggs a year is the maximum of some females, but they make it up in quality produced. Indian Game, if selected short breasted and long in tails, are good layers, but naturally the breasts of game birds are long and they have similar keels to a boat. They thus carry a lot of breast meat in front, little behind, and the layer is built on opposite lines, nothing in front, what they have is behind.



MR. TOM BARRON'S FORTY COLONY HOUSES
(6 feet by 4 feet each) with Runs attached.

Light and Dark Brahmas breed fairly true, the Light having the preference. The Silver Grey Dorking is another breed of fame, one of the oldest in existence. All of these breeds I have mentioned are marked fowls, and there is not a solid coloured fowl to-day that can hold a candle to them for breeding to standard points individually or collectively, and yet I would guarantee there are 1,000 solid coloured birds bred to one of the marked varieties.

Any amount of breeders run away with the idea that it is easier to breed solid coloured birds than the marked varieties or parti-coloured birds. I am willing to admit that Black Orpingtons

transmit a number of good birds, but in keen competition under judges who know the birds, they only have one pebble on the beach. The Black Orpington receives a lot of kudos from judges, because in condition his size and general appearance captivate the eye, but at the next show he is often cardless; the reason being that the bird was caught at the psychological moment in the previous show, a little off condition and his attraction cease. Not so with the marked bird, he may be considerably off in bloom and yet be far superior to his antagonists, besides, 500 Black Orpingtons are bred to one of Andalusians, Indian Game or Brahmas.

Take Wyandottes. How many specimens do we see of the White variety better than the Silvers? I can honestly say that for every first-class White shown, we can find Silvers of equal merit, and often superior, yet "on paper" type, comb, eye, beak, colour, lobes, and legs are all the redeeming points of Whites.

In Silvers you have comb, eye, lobe, neck hackle, top colour, wing bar, tail, saddle hackle, lacing, undercolour, type, size, legs, and beak. Golden Wyandottes are even better, and Partridges ahead again, although they are a parti-coloured fowl, and as their colour of feather is similar to the old original coloured jungle fowl, statistics tell us that all breeds possessing these colours have a bigger tendency to breed true to feather.

White Leghorns are not superior to Browns, although in Australia 10,000 Whites would be bred to one Brown, and in hens and pullets Browns are a long way ahead, particularly in type. Even under the American score cards they show little, if any difference.

Certainly White Leghorns and White Wyandottes breed true to colour, but they fail badly in head points as a collection. Black Orpingtons to the ordinary observer look uniform in colouring, but if examined even in good matings of specialist breeders, five perfect coloured birds, possessing the rich beetle-green colour from neck to tip of sickles, would be only a good average.

All breeds are hard to procure anywhere near to perfection. The Black Wyandotte, Leghorn, and the Blue Wyandotte and Leghorn are examples of the difficulties breeders have to contend with in self-coloured fowls, when certain leg colour is wanted, they have smothered the enthusiasm of hundreds of breeders, and Rhode Island Red are in a similar predicament, although the standard of this breed make it a parti-coloured one.

The Blue Leghorn and Blue Wyandotte colour was also a burlesque, faded before the feathering was finished, and through the inglorious turmoils of strife the popularity of these breeds appears vanished for ever, unless a vigorous revival takes place.

No; don't expect to find the ideals of standards easy to obtain. The only benefit you will obtain is in selling eggs, or chicks, that your clients, not having any experience, will be better satisfied with birds of uniform colouring, over some of the progeny of other

breeds, which any chump with a smattering of poultry can pick to pieces.

Often black fowls, and even parti-coloured birds, will develop red feathers on some parts, chiefly on neck, hackle, wings, or saddle; and to the inexperienced, or breeders who have not studied it, they are inclined to think it would be easy to breed an all red fowl, but although it is always cropping up in other breeds, it is very hard to produce even in colour, as breeders of Red Sussex and Rhode Islanders know. All sorts of dark breeds develop "red feathering," which spoils their chance in a show pen, but some of our best birds are bred from birds with this overplus of pigmentation, if mated correctly.

Red is so easy to obtain in breeds not wanted, but only spasmodically does the ideal red bird occur. An all solid and uniform red in colour, is one of the difficult problems for breeders, yet it is a self-colour! The conclusion of the whole matter is that you will find that it is the strain that you breed that develops good birds, not the question of self-coloured or parti-coloured varieties.

Business Methods.

IN disposing of surplus stock, the versatility of the various breeders opens up food for reflection to business men.

To the ordinary householder the matter of attractive advertising is not a *sine qua non*, as they have only a few stray birds to dispose of; but to the breeder who wishes to sell his stock, advertising is a serious problem. It is not particularly hard if you are a successful specialist, as your name soon becomes known, at any rate to all interested in the particular breed you are so successful with, but even here the wording of advertisement matter is the keynote of success. With successful rearing, and good advertising a man avoids the promiscuous idiosyncrasy of wasteful advertising.

I know some breeders who made up their business through successful advertising, and a man who will cultivate business methods, even in the world of poultry, will in time be far ahead of his rivals, who have no versatility or originality in advertising.

The great art in advertising is to attract the mind of your reader, by constantly advertising. It is no use popping in one week, and out the next; nor is splash spasmodic advertising of any use.

A big wordy advertisement put in once is rarely the success expected, the moderate normal advertisement constantly pin-pricking the clients is far more successful. The proper way to advertise in the poultry papers is to have a set advertisement, and

then use as a feeder three or four of the halfpenny a word advts., in the general rank and file, altering the wording of the latter frequently.

The ordinary stock advt., written after the following fashion, is so much waste time and money, no use to you, and no good to the paper you advertise in.

"Leghorns, Brown, White, from my champions. Prices according to quality. Birds from 10s. Apply, etc."

That is no good only to the brilliant specialist; but as we are not all top notches, we would word it in this manner :—

"Bred to lay Leghorns—White, Brown. Birds from 5s. Select Show Specimens, 20s. upwards. Apply, etc."

Or—

"Two Pounds buys lovely pen of Leghorns—four Pullets and Cockerel, unrelated. Apply immediate, etc."

Or—

"Cockerels, Cockerels, Cockerels. All ready to mate. Strong hardy birds, 5s., 10s., 15s., 20s. Forwarded any station. Apply—."

Always put the prices, women especially like to know prices, it does not matter whether you have any birds for sale at 5s. or not. You can write back and state you are sorry, but you have just sold the last bird at 5s.; but you have real beauties, honestly worth 20s., you will put in at 10s. The generality of ladies are educated to these methods in dry good stores, drapers' shops, etc., and really it is the way they are accustomed to being served and they appreciate it.

Some of my best customers for years and years were in the first place attracted by these methods. You want the budding enthusiast who is just coming along, but if you use big bait he will shy off. Catch him on a cheap bird, he will learn after he is educated the proper value, and you can drop him your leaflet each year, as all business poultry breeders should keep a file with the names and addresses of clients, and drop them an approximate list the following year in plenty of time before mating.

You cannot expect a new chum to splash out on high-class birds.

Let them learn how to keep poultry first, and if their enthusiasm is strong and they have a reasonable amount of success, they will sing your praises and be constant clients.

Always work from a price, as whether it is a man or woman, they like to know definitely at once instead of writing for prices.

You want an attractive memo. with a half-tone block on which to write to all your clients. Before sending birds drop a line to client saying what train or boat it is coming by, and also enclose a small stamped postcard for your client to advise you on receipt of birds how they like them, etc. It shows business tact to do so, and will be greatly appreciated by your clients, and also lets in other business which you would otherwise miss.

Once you have opened up correspondence, the rest relies on

your tact, personality and individuality in securing the client. But of course other men are keen on business. Live and let live is a motto, so if you have no reply, then the other chap has had the luck, or the better stuff to offer.

If it is a likely order and you don't receive an answer in a reasonable time, write again, some clients require a second spasm. But in describing birds you will have to be guided by circumstances. To fanciers wanting show stock, the description will require more details than when offering to some person who only wants a cockerel as change of blood for utility purposes.

INTERIOR OF POULTRY TENT, ROYAL WINDSOR SHOW, 1913.
Mr. Cris. Isherwood and Brother, Manager Scott & Co., Slough, the Author and Mr. Manning, Bendigo, Australia.

If you get an abusive letter and the contents are no fault of yours, don't write by return, wait till after dinner the next day.

If anyone has started in Poultry and wishes to become known in the poultry world quickly, the following plan will assist them. In any business undertaking no new beginners can expect to succeed like old firms at the outset, as they have had to develop their business by constantly advertising, to concentrate the mind of the public on their wares they have for sale. The public are certainly attracted by a physiological advertisement, but the bulk of the public, and especially the reliable public, do not care to rush new advertisers, until by repeated advertisements they have

become to have confidence in your name and the manner of your advertisement. Therefore it will be readily understood that you have to serve your apprenticeship first in getting the public used to your name and your specialities. This applies more especially in poultry than in a number of other stereotyped businesses, where things are sold at uniform prices, etc.

Start with a very small advertisement, then send to a couple of spice merchants and other tradespeople for their wares, then write them back stating you found their—"Food, spice, etc.," something superior to what you had used before, which will be quite true, as you have only used the ordinary pepper for spice, and the slops for food, and they will publish your testimonial sooner or later if it is worded correctly.

Also in whatever paper you are advertising in send along a par. stating you are doing grand business through the advertisement, and they will in all probability give you a nice paragraph. Do this once a quarter, wording it differently each time, as all Poultry Editors are sensitive to flattery, and they must reciprocate, and mention your firm every time. Then if you are specialising with certain breeds you must send in brilliant reports of their doings in articles from your special strains, etc. [This method may do for Australian papers, but not for English.—Ed. *F.W.*] [It's worth a trial.—*Author.*] But remember this, don't advertise till you have something to sell that is full value, as the public are fickle on breeders of ill-repute, and they are only taken down once. Names are a great mascot in advertising, and if you have just an ordinary name in starting it is preferable to have something that will tickle the memory of the public. As an illustration, if your name is Arthur Scott, drop the Arthur and call yourself Captain Scott or Major, as the case may be; the public might be inquisitive, but they won't ask you what you are Captain of, you can easily make some tactical excuse if asked. If the wife is interested in poultry, the advertisement should finish up, "All particulars to Mr. and Mrs. Brown," or, if the wife objects, "All particulars to W. Seymour Brown."

It sounds classical using the prefix, and you will also probably feel inspired when you have been called it a few times. All of these are legitimate ways, only competition is so strenuous these times that originality must be resorted to for quick progress.

Fancy *v.* Utility.

ALL men are born with different tastes, ideas, etc., and it depends on their training and environments whether these traits are introduced into the poultry world, and whether they will be separated by an imaginary line or a wide gulf in the fancy or utility.

I have seen breeders of utility birds who had no emotions for any particular bird or birds. They were callous and indifferent to any beauty point. They were simply automatic slot machines for feeding live stock and gathering eggs. The sole extent of their seven days a week existence was the pecuniary benefits likely to be derived from eggs over cost of feed. I have heard these men say, "I don't care whether they are rabbits, as long as they lay. I have no time to study feathers, and if I could make more money breeding spiders, well, I would turn the fowls out and take on spiders."

Yet this class of breeder must have some hidden fascination for his work. There must be some magnetism working as an undercurrent unknown to his faculties that holds him enraptured. It may be only the cackle of the hen that appeals to his nature, as the cackle of the hen is a gratifying music to the utility farmer, and the breeder of fancy fowls also wears a symbolic smile at a constant melody of cackle from his favourite pens. It does seem strange in Australia that there are a certain class of men operating on utility farms who are tradesmen, and could earn £3 to £4 a week at their trade of eight hours, having Saturday afternoons and Sundays all to themselves, will turn this down to embark on a ceaseless roll of work and worry to gratify some microbe that has command of their organism.

I will admit certain traits of men are caught at the physiological moment by the charms of fowls when viewed under suitable conditions. My own was spontaneous. I had never seen a fowl confined with wire netting until at a friend's house, when escorting me round his garden we came to his pen of Brown Leghorns, accommodated with an attractive scratching house, painted white with red roof, and enclosed all round by wire netting. I thought it was glorious, and the panorama completely mastered my emotions and my hidden trait for the mannerisms of fowls that had been lying dormant, and started the burning desire for a pen enclosed with wire netting. Others have been caught under similar conditions, some through the charm of day-old chicks—always a great attraction—others through pictures, reading matter, or the egg fruit, but something has developed their fascination. The majority of the most successful utility men are, I find, men who were previously breeders of show stock before the craze for utility

usurped the fancy. The reason of this is apparent. These men had the foundation and experience of the breeding of show stock, and were used to disappointments that pin-pricked them in all directions. They had such a wonderful ideal to attain that no man so far has ever reached it—I mean perfection—thus the ordinary details that trouble the breeders of utility only, who have had no previous experience of rearing fowls, undermines their energy, as they are not used to being up against the stream all the time. Their bumps are pretty drastic when they do come, and two or three following one another up closely staggers them, and becoming unbalanced, the next push squashes their previous optimism, and the game is abandoned or sold at the first opportunity. Breeders of live stock should bear this in mind, that all persons throughout the world who make any progress are fighting all the time. The moment competition ceases deterioration sets in, and this also applies to bird life and the animal world. There is no greasy pole to slide down in poultry culture. If you wish to make a living, you must be prepared for your carelessness and outraged nature. Those in the fancy world are innoculated before they go very far, as they only grin at disappointments, while the troubles of rearing are a pastime and recreation, as, only having a certain number, he watches each chick individually, and often the majority will show their superiority right through from chickenhood to maturity. The breeder has had seven or eight months of joy and gratification, and as a grand climax the blue ribbon at the Derby Show of the year. The breeder of utility has no time to study each individual chick. All his studies are done in groups or collections. The whole affair is a business transaction, and his only joy is in quantities, and his losses generally follow on similar lines, especially if he is only a beginner. The principal joy to the utility farmer is the collection or hen fruit, but outside a casual glance at his birds, he is too fully employed in all the details of poultry culture to study any individual fowl. His gratification comes at night at the thought of going to bed. Cannot the two be combined? I say emphatically, yes!

There are plenty of breeds of the popular varieties that, under judicious management, could be worked up collectively to pay a handsome profit without the constant drudgery of the utility world. The principal things to accomplish this are the art of breeding and rearing chicks—not learnt in one season—and the suitability of breeds for the soil and climatic conditions. For instance, in some parts of the Wimmera and Mallee (Australia) it would be waste of time to try and breed any yellow-legged fowl for Show purposes, as so much lime is in the soil, but wherever you see the sorrell weed in evidence the leg colour of the birds will be ideal. I just give this as an illustration, as in the districts I have mentioned white-legged fowls, such as Orpingtons (White and Buff), Dorkings and white-legged Game should be given a trial.

To combine utility with fancy, you could start with any breed,

or two would be better—a sitting and non-sitting breed. As the foundation of your success, mate principally for breeding Show cockerels, and for this reason it rarely hurts any male bird to give him a bath and send him to a show for a couple of days; but it often does him good, providing it is not overdone. With females it is different, as if sent to a show early in the year a hen, if she is laying, the strange conditions and the travelling make her nervous and fretful, and she is so upset that she goes off laying for three weeks, approximately, after the return from a show. This is where the constitution of Show hens is undermined, and if coupling the two together considerable judgment would be required in Show hens; but as you would be operating in numbers, by working one hen for each show while they were laying, and refraining as far as possible from showing any of your breeding hens, you will never outrage the laws of nature.

You may not have individual record-breakers, but your business is not run on the high average of one hen, which is bordering on insanity, metaphorically speaking, but on the collective average of your number of birds. Collectively is the success on a utility farm.

A fowl that lays 300 eggs a year is a monstrosity, unless she is well framed, has plenty of bone and substance, but generally they are a bundle of perpetual motion, small-boned, cocky-tailed, and seldom weigh four pounds, and if bred from, the stock are barren or a great disappointment. The 300 a-year hen should be treated as a fowl that lays double yolks—cast aside as a breeder.

If working the combined utility and fancy, and your egg average per bird does not come quite so high, you make it up in the valuable birds you sell for Show and stock purposes, and you have enjoyment instead of an insipid existence.

The ordinary utility farmer who has never been impregnated with the Show fever has no inception of its grandeur, and no words of mine could convey to his barren faculties the wonderful enthusiasm of watching a chick developing into the prospective Show champion. The potentialities of working a combined utility and fancy farm for profit is splendid, providing you have a couple of years' tuition first. As a consequence, a number of these farms combining fancy and utility will be the fashion in future years.

I am bringing the utility men who cater for laying competitions under the same category as the fancy, as they are breeding Show utility stock, have their ideals to work to, and the Press reports to flatter their egotism. But the utility farmer who will have none of this is the direct negative to the fancy, showing the difference between the Utility and Fancy breeders.

In America all the successful plants are run combined, and if you want profit and progress you follow this advice and couple the two together. The only extra cost is to build the breeding pens at the start. Feed, attention, interest on capital are all the same.

Cockerel breeding in Wyandottes, Orpingtons, Faverolles, Rhode Island Reds, Sussex, Minorcas, Hamburghs, Leghorns, and Rocks are all payable varieties for utility purposes, and from £3 to £20 per bird is obtained for cockerels, according to your country. These prices will pay for a lot of eggs, even supposing your average per bird is not quite as high as a highly-pedigreed bred-to-lay strain, and you do know where you are.

Do not get overexcited or hysterical, spurting up like a mushroom. Start with a plan, start with one or two breeds, and start in a suitable locality, and you will have work, pleasure and enjoyment.

I may have been a bit drastic on utility farmers; we are not all built alike. There are utility farmers who really enjoy their work, are vivacious and full of enthusiasm, but they are exceptions. I have to cater for the average individual who must have some excitement, otherwise he falls flat, and the shows are his life-blood. Routine work does not satisfy his organic nature; he becomes atrabilious, unless his emotions are fed by a tonic.

Now that I have disclosed the system for discarding the non-layers and selecting the best structured birds for profitable purposes, the combination of utility and fancy will run as a big syndicate. Even if you tire of attending shows and their details, you can, once you have become known in any particular breed, still sell the show birds at satisfactory prices, and a bird that is good looking, and a good worker will always receive the kudos even from a breeder who is entirely antagonistic to poultry shows.

A Little about the Egg.

AS the egg is the great magnet, a little on its mysteries will be appreciated. The two organs of the hen which play the important part in the development of the egg are the ovarium and the egg tube or oviduct. The hen has double-barrelled ovaries, but for some unexplained reason, one is dormant while the other is active.

The ovarium is attached to the backbone; its work is to form the *germ* that finally comes out as an egg.

All the eggs are in a cluster, and the egg organ contains all the tiny germs which a hen lays during her life. They are small yellow globules or spheres—the size of a clover seed—but they increase in size as it becomes their turn to leave their delicate outer coverings, and drop into the mouth of the oviduct, which is from 18 to 20 inches long.

When the fully-formed yolk drops it is devoid of white or

shell, both of which are formed as it becomes ready to emerge through the passage. During its passage through the first five or six inches of the oviduct it is coated with albumen (white of eggs), which is gathered in the oviduct and stored there by a process of circulation. To complete the work the yolk and white have to be shelled and sealed. As it passes along it is covered with a membrane, and, finally with a shell formed from the calcareous substance stored in the passage. Eggs are chiefly composed of: (1) Mineral (shell), (2) water (in white and yolk), (3) protein (white), (4) carbohydrates or fat (yolk). There are other ingredients in the egg, but their technicalities would turn your hair grey, so we will dispense with them.

The chief item to consider is the supplying of the material required for the formation of the egg. Animal food in the form of meat, blood, or green cut bone is rich in protein, but to give it in excess is to provide an over-supply out of proportion to the hen's requirements. It provides the white, which is the feathers of chickens, faster than the yolks.

Corn or maize is rich in carbohydrates or fat, and by itself, especially to hens, is injurious. It acts *vice versa*; it produces yolks faster than whites. Try and strike the medium; feed a proportion of protein and carbohydrates, an excess of one food rich in the elements required for egg production is worse than feeding a deficiency, as it ruins the constitution of the hen, and leads to waste through the excretions.

It is necessary to feed lime in some form, oyster or other shells, for instance, although in some places where hard water is used from reservoirs, sufficient lime is in water to fulfil the requirements. Still, to make sure, shells are needed, although often when a fowl is laying soft shelled eggs it is not want of lime, but overfeeding that causes it.

Handle the bird, generally a fowl that is laying rarely puts on fat if she has plenty of exercise, as she passes out all she eats in eggs after the upkeep of the system, but hens are often too fat when they begin to lay, and if overfed then soft shelled eggs are caused. The Mediterranean breeds of pullets rarely lay soft shelled eggs.

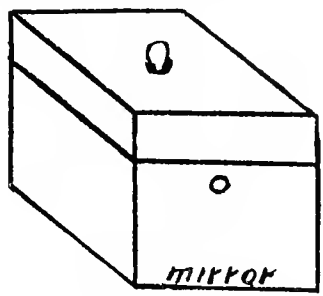
When the egg is complete the hen expels it in the nest, and the next yolk is already on the way to go through the same process from the oviduct. Double yolk eggs are caused through two yolks leaving the ovarium at the same moment, and if kept up this fowl should not be put in a breeding pen, as they shatter the constitution of a fowl.

I have seen eggs 6½ ozs. in weight, and the owner of the fowl felt proud of his bird's achievement. I have seen a fully-formed egg with shell on inside another egg, but they are freaks and of no use only as a curiosity. What a breeder wants is a 25 oz. to the dozen egg of uniform shape, free from indents, thin shells, embossed centres, and other deformities.

To Test Eggs for Fertility.

This can be done by holding the egg up against the egg testers, forwarded with incubators, or by holding the egg between your eye and a lighted candle in a dark room. If you are a beginner, take and try a fresh egg first, it will appear luminous, while a fertile one after a week's incubation will be comparatively dark all over except in top of air space.

An egg tester can be made from a cardboard box or one similar in shape as follows:—In bottom of box have a piece of mirror; it can either fit tight or be loose. In top of lid cut a circular hole that will take the general size of eggs without falling through on to the mirror; the hole wants to be cut nicely, so that the egg will fit close all round. Cut out a small circular or square hole at end of box, close to the lid, about an inch square will do, and that completes the tester. You can work this in a room with light shining from overhead or out in the sunlight. I prefer the sunlight.



MAGIC EGG TESTER.

Put the egg in hole on top of box, then place your eye against hole on end of box and look at the mirror, and in it on the fourth day of incubation you will see every vein formed of your prospective chick, so you can remove all unfertiles on the fourth day.

Eggs can be tested easily in strong sunlight sixty hours after incubation, which saves a lot of time and a lot of addled eggs, as the unfertile ones will be just as good as fresh eggs.

Life is really perceptible twenty-four hours after the eggs are incubated, as the first signs of blood veins can then be seen under a powerful light, but in the mirror tester they can easily be seen forty-eight hours after incubation. The heart appears on the third day, the pupil of the eye on the fourth. At the end of seventy hours the wings are forming, the brain, bill and head. The liver is formed on the fifth day. The sex develops on the seventh. The bones are shaped on the ninth day, the muscles of wings on the tenth, and the arteries on the eleventh. At the fifteenth the bill opens frequently, and on the eighteenth day the first cry of the chick is often heard.

The marvellous work of Nature is shown in the process of incubation, as the chicks feed on oxygen from the veins. The whole surface of chick is covered with countless blood vessels, venos and arterial, branching through its texture. The veins, which are bright scarlet in colour, carry oxygenated blood to the chick; while the arteries are deep crimson in colour, bringing the carbonated blood from the body embryo. This function is reversed after the chick is hatched.

White *v.* Coloured Fowls.

WONDERFUL and rapid strides in science are published every week in the poultry press, new ideas and theories are constantly coming to light, and keen breeders and scientists have to keep experimenting to be up-to-date. Poultry, more especially since the introduction of Darwin's book, has come more prominently under the notice of scientists and doctors, and the subject of this article has given them much room for thought, but not having practised nor taken sufficient observation to adequately study for themselves, the theory they have expounded is a fallacy, and it merely shows how at the present theories advanced on the different forms of breeding, etc., are taken as gospel because those interested are not sufficiently experienced to go fully into details. Hence many problems are allowed to pass unchallenged that are glaringly incompetent. Darwin, no doubt, laid the foundation stone of scientific breeding, especially in bird life, and he left sufficient problems, theories, etc., to exercise to their fullest capacity the minds of everyone capable of reading between the lines and evincing a desire to elaborate, improve, and build up to ideal perfection many forms of feathered life. I have followed Darwin, and by doing so improved the breeding. To a practical breeder he seems to speak direct, although his texts are shrouded in mystery at times even to them, and you have to read in between the lines to follow him. Following out one sentence of his, "In breeding, if you can only find out the cause of a certain fault, it is just possible other faults will disappear, as they often run together."

By this he infers that faults breed in clusters, and that when you kill one you smother the lot. Whether he arrived at this opinion by studying anatomy—as it is well known that some of the human diseases are in clusters—or speculated, I do not know, but I will give a concrete example as an illustration.

Some few years back judges went faddy on black eyes in Minorcas and Orpingtons; in fact, in Australia if you failed in eye it was often a disqualification.

Following up the theory I experimented, and found that if I could procure a Black Orpington cockerel with black toe-nails, I could breed black eyes every time, and the beak was also black. Here we have a vivid illustration, toe-nails, eyes, and beak as a cluster in black fowls. Langshans worked the same, but I could not find a Minorca with black toe-nails, but I feel sure it would be the same. There are not many Black Orpington cockerels about with black, or nearly so, in toe-nails. The standard is white, but those who made the standard were not aware of such a jewel in breeding.

I have just touched on this point, as Darwin's theories will be freely mentioned throughout this article. Darwin was not infallible; he made glaring mistakes, although his critics do not appear to have given us the correct solution.

Mr. E. Brown, the English Government expert, touching on white feathering in birds, writes:—"It is a common thing among naturalists that all white-haired animals and white-plumaged birds are not so hardy as those with coloured hair or feathers. Frequently objection is made to white races of poultry on the ground that they are delicate. Charles Darwin gave expression to that opinion, and as a consequence its correctness was generally assumed.

"My own experience and that of others does not confirm it. For instance, it is strange if white-plumaged or white-furred birds or animals are weaker than those with coloured plumage that we should find the former almost entirely within the Arctic zone, where the conditions of life are very much more severe than in the temperate or torrid zones.

"It may be suggested that the reasons why we find the white animals and birds in the Arctic regions is due to the law of the survival of the fittest, they being not so much seen by their enemies as are the latter.

"This undoubtedly has had a great influence, but still there remains the striking fact that the white-furred and feathered life are amongst the most vigorous of all our races, and are able to withstand the vigours of the climate."

In Dr. A. R. Wallace's work on "Darwinism," the same opinion is expressed, and he gives the following instances, such as white terriers suffering most from distemper, white chickens from gapes, blue eyes on a white cat an almost certain sign of deafness, and although female cats have been found with tortoiseshell markings, no male has ever been seen of this colour, etc. Mr. Brown goes on to say, "he communicated with Dr. Wallace, placing before him the facts which he has mentioned above with regard to animals in the Arctic zone, and in reply received the assurance that he had made no personal observation on the subject, but had accepted the opinion of Darwin."

Here we have an opinion from a well-known naturalist that he was really ignorant of what he was writing about, and on being tackled by the English poultry expert backed down, admitting he

had no experience, but followed Darwin. Mr. Brown's theory of the survival of the fittest I cannot follow. I put it down to environment and surroundings, not to the survival of the fittest.

In the British Museum there is a case of birds and animals from the Arctic regions as they appear in winter all white in colour; in a case adjoining the same birds and animals as they appear in summer; and they follow similar in colour to the grounds and the foliage as they are in summer. In another case they have birds and animals from the tropical region of Africa as they appear in the rainy season, and in close proximity to these a case containing similar exhibits garbed in summer costume.

In the spring costume the birds are at their best, clad in various rainbow hues, and the animals change to very vivid tints. In the dry weather they all undergo a drastic change, they are transmogrified as the vegetation disappears, and the birds and animals in the Arctic zone follow suit. Here we have it in a nutshell—"Environment and surrounding," not the "survival of the fittest."

Both of these gentlemen admit that in the mammoth cave in Kentucky the birds and animals found inside are the result of "environment," and it passes comprehension why they missed the analogy in the Arctic zone, when they had practical proof in the British Museum. Lord Alington evidently is not a believer in the opinion of Darwin on white animals and birds, as on his home at Crichel he has all his horses, cows, pigs, fowls, ducks, turkeys, etc., pure white. Of course this may be a matter of sentiment, but I don't suppose they die any quicker, or give less satisfaction than coloured birds or animals.

The theories of naturalists and others should be backed up by practical experience, otherwise they are shattered. In relation to the lice question they advance numerous theories, but the fact remains the lice appear, and breed, no matter if you have started in bird life from a setting of eggs, and are far away from other bird life, and your chicks are hatched in incubator, the eggs treated with a disinfectant before incubation; the theories are expounded, but the fact remains, the lice, like the poor, we will always have.

Darwin may have read the work of the old Latin writer of the history of fowls kept by the Romans, and white fowls not being popular in Darwin's day he accepted the writings of "Columella" as authentic. "Columella," in writing his little bit on Roman fowls, stated: "It is not advised to buy any but such as are prolific; they should be of plumage red or tawny with black wings. Let the whole be of the same colour, or of a near approach to it. But if any other colour, let white fowls be avoided for they are tender and less robust, neither is it easy to find specimens of them that are prolific." I wonder what "Columella" would say if he dropped amongst the 1,000,000 White Leghorns of Peteluma to-day, in America, or the big utility poultry plants of Australia; or if he

wrote disparagingly of the white varieties how the breeders of White Orpingtons, Wyandottes, and Faverolles would slate his criticism. "Columella" goes on to say (it is not to the subject, but the remarks should be interesting to present day poultry readers), "Let the hens be of choice colour, of robust body, square framed, large and broad breasted, large headed, with small, erect, bright red comb, and white ears. Those hens are reckoned of the purest breed which are five clawed, but so placed that no cross spurs arise from the leg; for she that has this malelike appendage is less fruitful, and when she does sit, she breaks the eggs with her sharp claws.

"The cocks should be lustful coloured, like the hen, with the same number of claws, but taller, proud of carriage, comb erect and blood red, eyes brown or black, beak short and hooked, ears very large and very white, wattles looking lighter from their shining, and hanging down like a beard, the feathers of the neck or mane varying, but preferable from yellow to golden, spreading down at the shoulders, breast broad and muscular, the wings brawny (like arms), the tail lofty, and composed of a double row of arching feathers, alike on each side, the thighs ample, and usually thickly covered with coarse feathers, legs sturdy and long but armed as it were with dangerous spurs. Even when neither prepared for fighting nor for the triumph of victory, their temper should be shown to be highly generous, haughty, watchful, and given to crow often, also not easily alarmed, for sometimes it will be needful of them to repel attacks, and to protect their conjugal flocks."

This description of these birds tallies with the Dark Dorking of England to-day. What a wonderful revelation of history; here we have a fowl kept pure for over 2,000 years.

The Black Spanish is supposed to be a very old fowl, but there are none in Spain to-day, and it is doubtful whether there are any fowls answering to the description of "Columella" to-day in Italy, but I have no authentic information of this.

The old traditions of early days, in a lot of instances, are gradually fading away in these enlightened days, until to-day, for popularity and usefulness, the pure white fowl, or the intermingling of white and black feathering, easily outnumbers all other colours.

White is a very strong factor to contend against in some breeds; it is always cropping up, upsetting the temper and nerves of breeders in many breeds by its creeping in and spoiling the uniformity of colouring of high-classed Show birds.

Breeders of Black Orpingtons and Minorcas, Silver, Golden, and Partridge Wyandottes, and Brown Leghorns, all have trouble more or less at different times.

White flights will come on Black Orpingtons and Minorcas. In this case it looks as if all feathers were naturally white, as it depends on the flow of sap or pigment whether the feather will be black. Rear your chicken in a sloppy or lackadaisical manner, or out of season, more particularly in the hot climates of Australia,

MR. R. NODDER'S BREEDING HOUSES AND RUNS. (See advertisement.)

and you will have no trouble in breeding white flights. Hatch a setting of Brown Leghorns under your own supervision; they will breed right, sound flights and tail. Give another setting to a friend who lets them scratch for their own living, and you will have a vivid object lesson in outraged nature. I am not quoting this to prove my argument that white fowls are superior to black, but as a side issue showing the depredations of vitality in colouring when proper feeding and nourishment are omitted. In this case, white does show weakness, but the white feathering as we see it in badly reared chicks is a different lustre of feathering as we know it on white fowls. The one is a dead white without lustre, the other a form of embossed satin feathering full of lustre. Of course, if white fowls are fed carelessly as chickens, their pigmentation suffers as well.

Again, we often see pure White Sports thrown from black or parti-coloured birds. Silver Wyandottes, Minorcas and Spanish have an hereditary tendency to transmit this repeatedly, with Silver Wyandottes the principal culprits.

I have seen Black Spanish turn completely white at three years old, and I have seen Brown Leghorn females turn into Duckwings at the same age. In this case it was a reversion, as probably the Brown Leghorn had been crossed with the Duckwing for a soft shade of feathering. The double-lacing or the fringing of feathers on Wyandottes shows the power of white colour. Buff breeders had a rosy time for years trying to eradicate white under neck hackles, wings and under-colour. Black Leghorn breeders were driven dotty trying to breed sound sicklers with a good yellow-leg. Black Wyandottes are troubled the same; directly the leg colour is right, the under-colour is wrong. Certainly we can turn round, and in White Wyandottes and Orpingtons foreign feathering, even if it is only one, creeps in. It is nothing to remove two or three pure buff feathers from White Orpingtons, but their pedigree was a sport from Buffs in some strains, while the White Wyandotte was a sport from Silvers; so it is just a little prank of nature showing breeders the prehistoric evolution of several breeds.

White fowls to-day hold all the world's records for egg-laying, while for table purposes they are equal to any utility breed. They may not be so sound in constitutional vigour for a long life, but in these days the usefulness of a fowl ceases the third year, after that, for breeding purposes, there is no reliability, and time and labour are too precious for experimenting with old birds. Chickens are reared early these strenuous times. Otherwise the potentialities of your business will crumble into decay. But white fowls are fashionable all over the world, and the biggest and most profitable plants in the universe are proving that the old phantom is a Bluebeard, that it is not a matter of colour or feather, but of the energy, skill and enthusiasm of the breeder. It is the skilful breeder who operates, and whether it is in Rocks, Wyandottes, Orpingtons,

Faverolles, Leghorns, Sussex, or any other utility breed, white, black or parti-coloured, it is the man's individuality, tact and methods that bring success and fame, not money or any particular colour of fowls.

Scientific Breeding.

FOR a concrete example of breeding methods there is only one reliable system, all others are simply useless, as the breeder who operates on the plans and specifications laid down will crumble all the haphazard breeders up in a couple of seasons.

It is simplicity itself; in fact, simpler than sloppy methods, but the line of demarcation of the results is a vivid contrast to the breeding of stock worked under ordinary methods.

There is no floundering in the dark, certainly all breeders generally know the male bird of the progeny, but very few can tell you the mother, unless they depend on single mating, and that is rather an expensive method.

All breeders if they wish to make a name in the poultry world must work on the plan as laid down here, whether breeding for utility or fancy, or combining the two. No man or woman will ever keep in the front rank continuously, year after year, unless they mate on this system or spend unlimited capital in buying stud birds. Let the other person buy stud birds, you can breed them; its success, providing you can rear chickens, is assured; as this style of mating worked in conjunction with *line breeding* will bring any breeder rapidly to the front and keep him there, providing his matings and blending are correct; although you may not succeed the first year on account of faulty matings, still you will eventually come out successfully and reap the reward for your labour and perseverance.

Touching on this system, M. L. Pitman, the founder of the Sargrenfri Yards of Adelaide, South Australia, and one of the best breeders of continuous high-class birds, bears me out when he pens the following lines:—"My experience in breeding poultry has convinced me that no real progress can be made by penning a cock and four or more hens together to breed from unless each individual hen's eggs are kept and hatched separately, and the chicks toe marked.

"By working on this foundation you know positively the sire and dam of each chick, and by watching them closely as they grow to maturity, you can note their hardiness and vigour, their good and

bad points as they appear. And chicks so bred are of greater value than those bred any other way, because you are sure of their pedigree, and should the progeny of any particular hen be of exceptional quality, you are in possession of all the facts of their breeding.

The necessity of it is shown here, as an example. We will presume you have mated a cock and four hens under this system, and have kept and hatched their eggs separately, the following as an illustration may be the result :—

Hen 1. The young birds from this hen are not up to expectation and show faults which you did not anticipate, hereditary taints appearing of which you were ignorant. Probably this hen will breed with another male bird good stock, the union is at fault, so instead of discarding her and wasting time next season, especially if you know she is a right one, you have a better chance of proving her worth under a different mating.

Hen 2. This mating was superior to number one, the cockerels grew vigorously, some were of special quality and superior to the sire, the pullets were superior in size, but lacked quality; nothing special for show purposes.

Hen 3. The cockerels from this bird were good collectively with one or two specimens showing grand quality and head points, while type is also splendid, some of the pullets are splendid specimens, but the balance are poor, Nature's freaky way, in a number of instances, of throwing exceedingly bad and *vice versa* birds from the same mating, all the good points fallen on the mantle of the mascots, while the others seem to have clustered all the faults together. Presuming you are working with a solid-coloured breed such as Black Orpingtons or White Wyandottes, I fancy I hear the breeder say, "These are the matings I have been trying to obtain, cockerels and pullets fit for the show pen from the one mating, an invaluable asset." He knew he had produced good cockerels and pullets in the old way, but not knowing the right parent, he was floundering in the dark, this mating has shown him at once the correct breeder.

Hen 4. The progeny of this mating was poor, weak in vigour and constitution, and weakly all the time, a danger to other chickens if they had been running together.

This hen causes loss and disaster in any poultry yard. She is really a disease carrier, and the sooner she and her chicks are wiped off the face of the earth the better. This shows the absolute necessity for single mating, also that the little extra trouble is time well spent as it gives you accurate knowledge on which you can make your selections for your matings next season.

You have actually seen the results produced from certain birds, and consequently you have a better chance to improve your flock next season in type, colour, etc., while the egg-producing

qualities can also be noted. The system proves without a doubt the breeding qualities of each bird penned, and I feel sure that my readers will be convinced of its merits before they have tried it.

A special breeding house will have to be constructed to allow you to work the systems with a minimum of labour. You can build it to hold three, four and up to six or eight birds, as the case may be. Size of house 4 by 4, there is no need to have an extra one for the male bird, as he can always have one of the hen's pens, or he can roost with one of them.

Yards running off from these pens can be used. Size 9 by 4 for each bird, and then an assembly yard for the lot after 2 p.m. in the day, as per illustration, page 117.

SCIENTIFIC BREEDING OR SINGLE PENNING HOUSE.

Now place one of your selected hens in her pen, put a coloured or numbered ring on her, also paint or mark each house. To avoid confusion, if possible use coloured celluloid leg bands, if not obtainable—ribbon, as it is easily seen, each hen will thus have her separate abode.

The hens and cocks are kept in their separate pens all day until 3 p.m., as, generally speaking, all will have laid before that, then they can be let together in the assembly yard.

If possible, provide a lean-to in this yard, or have a corner boarded off, six feet square, a foot high, into which put scratching litter—a mixture of straw and horse manure, and then feed the evening meal of grain, burying it in the litter so that they scratch, scratch, scratch. The cock will help them, and give all the attention require before evening. Each bird can then be put back in its own pen till the following afternoon.

The breeding season generally lasts about three months, after which this range of pens can be utilised for chickens, the setting of broody hens or cockerel pens.

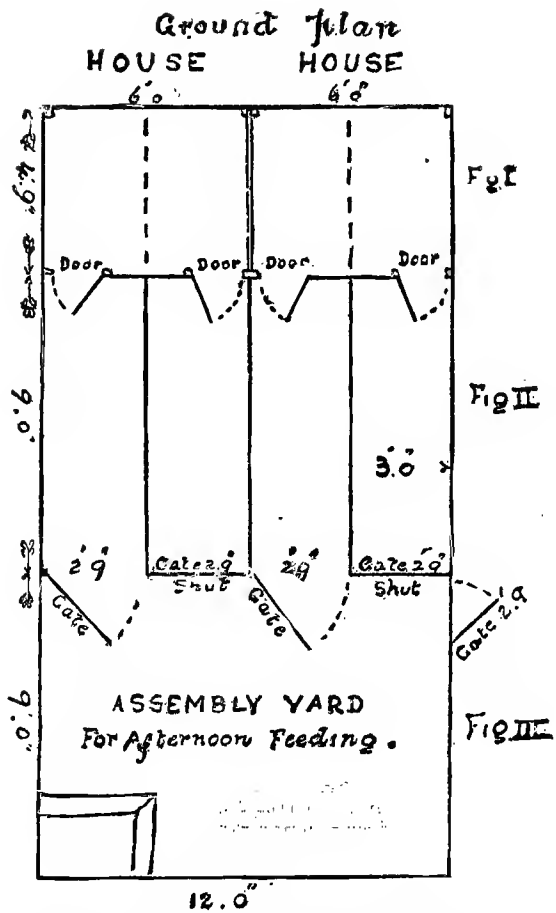
If under this system you are optimistic on the pedigree of your females, and all the progeny are only moderate, then a new male bird will have to be introduced the following year.

If each house is painted the particular colour of the band corresponding with the hen, or even the door will do, the hens have a special gift or faculty for becoming used to the colour, and little trouble will be experienced in driving them into their right quarters at evening.

Before feeding in the morning you could ascertain what fowls will lay for you, and if some will not be laying that day, they can be let run all day, unless the hens are special show stock and require to be shaded from the vagaries of the weather. To ascertain if the pens of pullets will lay, insert the little finger, "which can be covered with a finger glove," into the entrance of the vent, and at the depth of one inch you will feel the egg if it is there, thus all the eggs the hens will lay can be checked in the morning, and if at 3 p.m., when you let the birds together, you find one that has not laid then try her again, and if she is not an egg eater you can keep her in till she does lay. I have known a bird sometimes to carry an egg two and three days before she passes it, but that is generally in the beginning of the year.

I have been in dozens of yards where the owners are wasting time, patience, and the constitutional vigour of their birds by experimenting with clumsy trap nests, an expensive luxury, in fact, to instil into breeders' minds, the drudgery of trap nests, then they, unless cranks or possessed of great will determination soon abandon poultry as a living for some better and more remunerative business, with less details, less pitfalls, and less dangers of becoming a candidate for the insolvency court. If you are working under utility condition, there is no need for you to erect single mating pens, or use trap nests. Select six or eight of the birds you wish to test for numbers of eggs, then before retiring for the night you can by inserting the gloved finger put down the tally for the next day's eggs, and if the record is not up to your expectations, then the hens can be examined for the one which did not lay, or the egg may have been broken and eaten unbeknown to you. It is a far more reliable guide to insert the finger as directed, and no mistakes can possibly be made as under single penning or trap nest methods, when the egg vanishes without a trace by rats, crows, or becoming cracked is eaten.

Under this method you have no fear of harbouring barren hens. In one of our competitions at South Australia, and in another instance at New Zealand after about nine months, the Government officials, who had charge of the operations, discovered



GROUND PLAN FOR SCIENTIFIC BREEDING RUNS.

barrenness in one hen, and that the other five were doing all the work.

If the vent had been exploited it would have been discovered in a fortnight or less. There is absolutely no need to build pens for single mating to test the number of eggs laid by individual hens, its wasting money, wasting time, and wasting the constitutional vigour of a bird which is kept in continuously throughout the year in a small pen, and if she does put up the record you want, her health and vigour are shattered as a breeder, because you, by shutting her up in so confined a space, are forcing her unnaturally

to lay, forcing her by feeding and housing, which will eventually cause the worm of Nature to turn, and bring the Biblical maxim vividly before your memory:

"Whatever a man sow, so shall he also reap."

For utility purposes an ordinary poultry house with a yard and grass run is absolutely needed for best results, that is, if you want to breed with some of these tested birds the following year.

The stamina and vigour of the birds require to be fostered, the physical strength kept up and improved, and the birds fed under natural conditions, not forced for laying purposes in any way. Then you will be able to go on the road to success, and build up your strain on a flock average; as breeding from a single bird, which very often is a weed in size for her breed, is, because she puts up a wonderful record, introduced into the breeding pen, and the stock are inferior specimens, often barren or possess other undesirable traits, but this will be more fully dealt with in another article. I trust that all breeders of both utility stock and exhibition specimens, also all beginners who intend breeding pedigree birds, will give this their earnest attention.

After the breeding season is finished, these houses can be used for cockerel houses, or even chicken runs, but here the ground of the runs would have to be dug over and oats or wheat sown to freshen the ground. Houses of this type are always useful all the year round and one of the best assets on your establishment, and once you have used this system you will never revert to any other.

Line Breeding.

LINE breeding consists of a combination of blood matings, that, when bred correctly, have Nature's tendency to reproduce themselves in the different characteristics individually, and often collectively. It is a scientific form of breeding that, if the first matings blend, will give you a super-abundance of high grade stock over the ordinary chance matings as practised by your rivals.

The potentialities of line breeding are not understood by the great army of breeders for show purposes. They practise in-breeding, often unconsciously, but there is a great gulf between inbreeding and line breeding.

Line breeding can be used in double mating breeds, single

matings, the latter for preference, and also in the utility world, although the latter can be worked by selection, as you are breeding for one point only.

The great drawback to line breeding is the beginning or the foundation of the principle, as for concrete results the male and females, that you intend starting with, must be absolutely unrelated. You can start with birds related, but unless you are positive about the relationship, trouble will ensue sooner or later.

The principal drawback to line breeding is that the scheme collapses through deaths or the incapacity of the original birds, before the mating that would have done the trick; as often it is the third return matings that give the uniformity of feathers and type. Individual male birds, which possess wonderful power of transmission, will breed excellent birds if mated to second rate specimens, while with one or two females almost every chick will be a reproduction of the parents in standard points, with this difference, they will not possess his individual gifts of transmission, although mated with better birds. It is almost a freak to possess one of these rare breeding birds that have the wonderful trait of reproducing offspring with only one or two wasters amongst them; and a breeder, who is fortunate enough to possess such a bird, will appreciate the grandeur of the laws of Nature, as he simmers over with pride at the success of the experiment.

In old breeds such as Hamburghs, Dorkings, etc., they have inborn organic or hereditary traits that tend to breed collectively a more uniform lot of chicks than breeds which have been introduced during the last fifteen years, but there are male birds of new breeds, that, if given the opportunity, will rapidly produce offspring that will be the admiration of fanciers and of the public.

The first matings from the union of your foundation birds, even though they may be as near ideal themselves to standard points as it is possible to obtain, are very often disappointing. This may be the result of the cross fertilisation of blood, or you may have been unfortunate in one of the birds you are breeding with, having been a fluked isolated bird bred from inferior stock, and the union was a throw back to his parents of doubtful pedigree and inferior standard points. So, if possible, when starting line breeding see the parents on each side, and satisfy yourself that you have a reasonable chance of reproduction in two or three matings, if the mating is all astray on the first union.

If you possess this knowledge there is no reason for you to be downhearted at your non-success of the first union. Simply set to work and select the birds with the best undercolour, fluff, type and comb and mate back on to the original parents. Mating a son to his mother and a daughter to her father, to be followed next year by the grand-daughter to the original male, and a grandson to original female. This mating should be as near

ideal as possible, if not so, then the blood union is at fault, and you will have to try other lines of blood, and this is why I couple scientific and line breeding, as if only operating with one male and female, and the union is not successful, you have wasted two years of your time, and sapped your enthusiasm.

You will have to have some means of identifying the particular chicks from each female, which can be done by toe punching or coloured celluloid leg bands or a combination of the two.

Another disappointing feature that not only occurs in line breeding or inbreeding is, through some cause or another, the chicks are a failure the second season, the union may have been splendid the first year, but the results the second year were a superabundance of culls, if the same male and females were used much to the annoyance of the breeder, who was congratulating himself on the superiority of his matings.

Unfortunately we cannot fathom the mysteries of Nature's laws in this respect, we often see the vagaries of Nature in feathers, when a superbly-laced Silver Wyandotte pullet will be a veritable cull in feathering after moulting as a hen, in her third year, will reproduce herself in her correct pullet feathers, sound in colour and clean in lacing.

The majority of male birds die through some cause or another after their second or third year, and if they have been at fault on the second matings and you give them another trial with no success, it stands to reason that some organic or constitutional weakness is responsible for its incapacity to transmit the reproducing powers of its first matings. The females are often good breeders till five years old, but a breeder is exceedingly fortunate who owns a breeding male which will produce good stock every year up to that age. Such specimens are invaluable to the fancier or the utility breeder.

The chart, as used in line-breeding, is illustrated. It may look mysterious and unfathomable to unravel the various results of matings, but if you cannot follow it yourself, secure the help of some of your learned friends who have passed their scholarship in mathematics or algebra, and they will explain the various phrases of the dotted and black lines. Even if I gave a detailed account of the system in writing, very few would be able to follow the peregrinations of its travels, I will simply give the key to the situation, and the rest will be a problem to be worked out at your leisure, as fortunately you have a year to work out each mating.

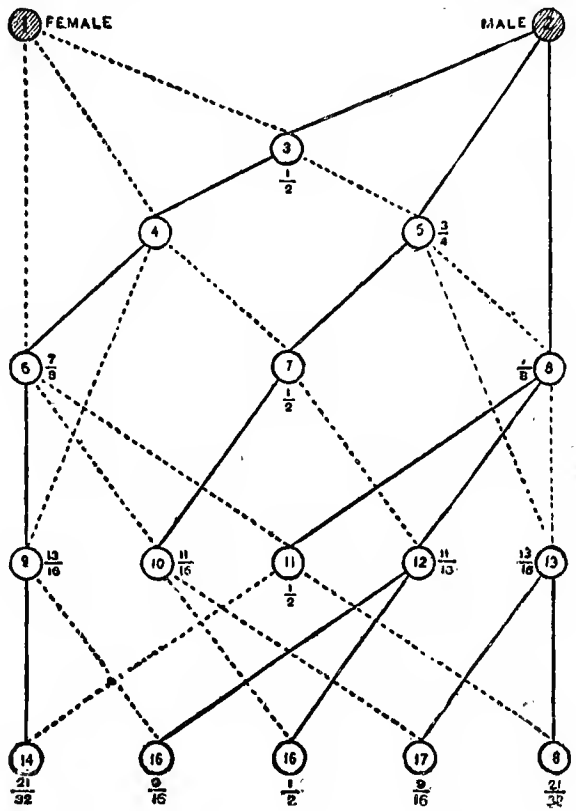
No. 1 female is mated to No. 2 male, progeny of which is No. 3.

No. 3 cockerel is mated to (follow the dotted line back to No. 1) his mother, and (follow the black line here) the progeny is No. 4.

Again mate No. 3 female back to No. 2, her father, and you (follow dotted line) get Group 5—three-quarters the same blood as parent.

Again mate No. 5 to No. 2 male (follow black line), and you have No. 8, or seven-eighths same blood as male parent.

If you mate Groups 4 and 5 together, you revert back to No. 3,



half the original blood of male and female. This is often a splendid mating if the first union has been a success. Groups 6 and 8 mated will again give you half the original blood of both parents.

Group 6 with No. 1 will give you No. 9, $\frac{13}{16}$ths of parent blood; group 5 to No. 7, and you have No. 12, $\frac{11}{16}$ths, or No. 7 to No. 4, and you have No. 10; No. 10 back to No. 6, and you have No. 9, $\frac{13}{16}$ths.

It is simple enough, and I have explained it sufficiently for you

to follow. In any case, it is always advisable to bring in new blood on one side or another every three years, using your own judgment as every brainy breeder wants a reserve. As sometimes certain strains will collapse simultaneously, and unless you have other blood to work with, it means perhaps three years before you regain your position.

Birds bred in line for vigour or size are the equal of cross-bred birds, and far superior to cross-bred birds as reared by amateurs.

In every case you select the finest grown birds as breeders, avoiding birds that have any sickness, and when breeding No. 4 or No. 6 back to No. 1, as a safeguard, secure some friend to rear the chicks on new ground that your birds have not been accustomed to, as that alone, change of climate and environment, will put extra vigour into the offspring. In any case, if you do rear the chicks yourself, give someone whom you can rely on to rear chicks a setting, and you will have a vivid object lesson as an illustration.

The ordinary householder and farmer who makes no study of fowls will be wise to buy and introduce fresh blood each season of pure-bred cockerels, as the inbreeding of first-cross blood soon becomes disastrous in the egg yield and the stamina of birds, and for their purposes it is best to keep fowls pure, or, if they will have first-cross, use different pure-bred males each year.

Line breeding, coupled with scientific breeding, is the keynote of success. It may be more costly to start, but the results will soon repay for outlay. In any case do not start until you have learnt how to rear chicks, as one is no good without the other, and a beginner must crawl before he can walk.

Perhaps the matings that throw the superabundance of vigour in chicks, out-cross or inbreeding, are as follows :—

From a pen mated for scientific breeding—say two hens or pullets of different blood and mated with male of different blood—the progeny will be strong if reared properly, and if a male is selected from No. 1 hen and mated with pullets from hen No. 2, you have the foundation of the blending of blood that will throw extra vigorous stock, although they are related, but you will notice that the male bird was from No. 1, the pullets from No. 2. The evils of inbreeding are rampant if the mating was as follows :—If you mated a cockerel to pullets that had been reared from two male birds full brothers, then outraged Nature would take heavy penalties even in bird life, and it is the one mating you must avoid.

In both cases they are cousins, but in one mating you are mating stock from a brother on one side to sister on the other—good—but in the latter, cousins, they are both from brothers although the females were unrelated. This applies to the human race as well.

How to Discard Non-Layers.

AT the present day the keeping of poultry for sentiment is gradually becoming extinct. True, there will always be a certain class of people who are embodied in the toils of conservative ideas, who are satisfied with things as they are, and who cannot get things out of their head taught by their grandmothers in childhood days. It is not that they have any particular weakness for form or feathers, but they get attached to bird or birds, and their scruples are so acute that they are classed as pets, and kept until they die. Sublime sentiment!

But to the progressive utility man sentiment is not looked for in the poultry yard, but keeps sentiment for some other pursuit in life. The progressive man will make short work of his drones if he is able to pick them out, and any breeder possessed of ordinary commonsense can easily manipulate the system of selecting the unprofitable birds by following the instructions in this chapter.

If a fowl will not lay 120 eggs a year it is a hindrance, unless it is a valuable show bird or an acquisition for breeding show stock; but I am dealing with the rank and file birds which are expected to show a profit over their keep besides working expenses, etc.

If 500 birds are kept for laying and only 100 of them are earning working expenses you are wasting time and profits, as well as sapping your energy, as they pull the general average down. Discard these and the average per bird will astonish you and show you that poultry do pay, and that the weeding of drones saved the situation. However, I will not sermonise on the merits of the system, but give the details as briefly as possible.

1st. Catch the bird, handle it, running one hand along the breast bone. If the breast bone comes within an inch of the vent or pelvic bone, which are the two bones coming down from underneath the parson's nose, the bird is a king of drones. Sometimes I have seen the breast and pelvic bones almost touch one another. Discard these, as the long breast bone is never found on a layer. The bird may do to fatten up for the table.

2nd. If the breast bone is of medium length, but it is coarse, hard, and at the finish of breast even harder than in the middle, and the vent bones are also stiff and bony, discard these also. An Indian Game fowl is generally built on these lines.

3rd. If the breast bone is fairly short but hard and stiff, and turns upwards at finish towards vent, and the vent bones are stiff, no matter the width, discard; you will more readily follow dissection by studying the illustrations.

4th. If the fowl is fairly short in breast, and the bone feels pliable or gristly, and the vent bones follow suit, but between the

end of breast and the vent there is a thickened skin that feels lumpy (this generally applies to hens), they also are unprofitable on a utility plant.

5th. If birds are short in breast but soft, with vent bones similar, but has a long snaky head or a wide bull head with sunken eyes, these also are candidates for market.

6th. There are a class of bird that have short breast bones, soft vent, but their structure is wrong. They are flat-sided, narrow in body, not ribbed up, that is, there is little room in the organ department. They would have been good birds if reared properly, but through bad feeding and mismanagement they are organically weak, and are also unprofitable. This class of fowl takes a little more skill in selecting, but experience will teach you. The other five descriptions are easy enough for any schoolboy to follow.

You will pick your male birds under similar conditions, with these exceptions. That the breast of male birds are always longer in proportion to females, and the bone is harder collectively; otherwise the selection is similar.

To farmers, householders, and backyarders these hints are invaluable, as I know that ninety-nine out of a hundred of those keeping poultry feed drones.

This sort of bird feed up in the morning and go and stand on perches or in a corner till two o'clock in the afternoon before they make a move. They are uncommonly fond of mash food; they would certainly gladden the heart of any cook, but the one who pays the bill will tell you how his eggs cost fourpence each instead of fourpence a dozen.

We will turn round now and endeavour to show you how to select layers, although it is not so easy as picking the drones.

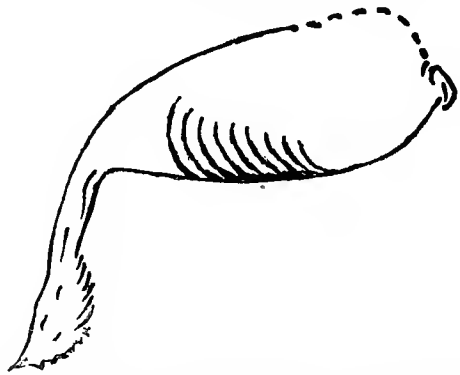
First study the illustrations and then proceed on these lines:—

The shorter the breast bone the better, providing it dips downwards and does not curve up like the keel of a boat. The general outline of bird is shaped like a good milking cow's body, deeper behind; the end of breast bone soft and pliable. The pelvic or vent bone should not be bony but pliable, not necessarily soft but pliable. The width between pelvic bones is of no account; anything from two fingers to three is good, but often the two-fingered bird is far ahead of the three. The great secret is width between breast and pelvic bones, but all birds that have a tough skin with bumpy fatness between vent and breast are not to be relied upon, and they are often barren and unfertile.

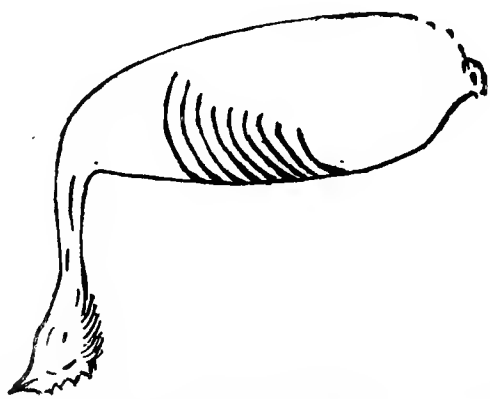
Often the end of vent bones instead of keeping straight on, turn round, similar to a cow's horn, but as long as they are pliable it makes little difference, although I prefer them straight.

The width between vent bone is largely a matter of laying, in any case they always expand while the bird is in full lay, and close up during the moult; so close, that you are hardly able to insert one finger in the passage.

THE KEYNOTE OF SUCCESS— ELIMINATING GOOD FROM BAD LAYERS.



THE GOOD LAYING TYPE: NOTICE SHORT BREAST BONE.
(See Article.)



THE BAD LAYER: LONG BREAST BONE, NARROW BODY, BIG HEAD. (See Article.)

After you have selected your best layers, by the test, the next thing is to put a dozen in a pen, and watch for constant scratches, the late to bed and the early riser. This will give you the climax, providing all birds are laying; if you are selecting pullets before they lay, then you will have to depend on the test, although the prominent eye and shape of head is an extra guide.

Your best plan if operating with a large number of fowls is to grade them out first, second and third and watch for results, but in any case you will not be feeding wastrels, as that test is authentic.

Not long ago I was in a yard where there were fifty to sixty fowls. They looked fairly healthy, but on asking how many eggs a day they got (and, mind, this was in the glut of year) the owner said from four to six; she couldn't make it out, as they were well fed, etc. So we rounded them up and examined them by my method, and out of the whole lot not a single bird would have paid for its keep. They were all bad, some worse than others, while others were barren. Six decent fowls would have given more eggs, and only cost a fraction to keep compared to the others.

In light breeds a good layer generally carries her tail fairly high and well spread, and she generally is well feathered around the thighs, the utility breeds follow on similar lines, only the length of body is not so noticable, owing to the build of bird, although White Plymouth Rock show it vividly.

The Wyandotte and Orpington are a blockier-built fowl, with plenty of barrel room, the heavier fluff on legs and thighs takes off the length of body, but if birds are selected and bred correctly, good layers can be had in any utility breed. Dorkings and Indian Game are mainly bred for table purposes, therefore the majority are no good for egg layers, but where the Dorking carries a short breast bone and a little extra length in tail feathering, they are good. The long-tailed birds in Indians are also better layers than the show-typed specimens. I have little more to add, but you will now be able to keep poultry profitably and explain to your neighbours that the book of mine put you on the right track.

Finally, the layer carry little breast meat, all she has is behind. This coupled with her structure, head points, and the pliability of breast and vent bones, the shortness of breast bone are invaluable to know, if you are keeping fowls for commercial pursuits, and not for sentiment. A laying fowl is never still, she always keeps moving by some craving in her appetite which never seems to be satisfied, and remember the short breast bone bird must have good prominent eyes.

Double *v.* Single Matings.

SINCE the inauguration of the first poultry shows wonderful strides in the breeding world have been discovered in the various breeds of poultry.

Standards of excellence were drawn up to cater for the advancement to perfection of an ideal which, when produced, would gratify the ambitions of the most enthusiastic admirer of the breed he had for his particular fancy. The standards of several breeds were drastic, and the intelligent breeders were not long in coming to the conclusion that unless some other sub-variety or outcross was introduced and blended into the breed they were operating with, it would be absolutely impossible to ever breed a bird that would approach within reasonable distance of the standard.

In some of our standards drawn up for the various breeds there are some cranky ideals to attain that would undermine the will-power of an hypnotist, but allowances must be made, as in some of the breeds those who drew up the standards had no data to follow, and in compiling them set such a strenuous task for breeders that, when the bird approached within reasonable distance of the standard, the vigour and constitution of the breed were practically ruined.

The pioneers of standards are not to blame in the majority of instances, as it is the judges' and breeders' interpretation of these standards that are responsible for the monstrosities that have been introduced as the ideal pattern of the breed. When the only charm on the bird was one particular point, such as its face, hock feathering, lobes, etc., and this captivated all its admirers, the build or construction of the birds rarely being the special point of admiration. The bird could have its main girder twisted, the breast-bone or some other bodily deformity, such as the breast bone touching the vent, squirrel tail or a whale back, but all the construction of the bird was overlooked for the fascination of a fashionable lobe, face or comb, or a combination of the three, and the particular craze was introduced for these specialists.

Certainly we have to give the breeders all the kudos for showing their skill in mating to introduce such specimens, but in these times, when the fancy and utility have to be running in double harness, I look forward to a new rule, that will have to be introduced in all standards of utility and non-sitting breeds, when shortness and pliability of breast bone and formation of the bird as a reasonable producer of eggs will decide the merit of a bird before it receives the blue ribbon. Certainly breed as near to standard points as possible, but give preference to the birds that are both useful and beautiful. The introduction of this would get

judges out of many knotty problems, as often they are nonplussed in separating the first, second or third bird, and the breast bone test would be the referee.

Perhaps the first breed to be brought under the influence of double mating was Partridge Cochins. The early introduction of this breed into England had brown or mixed black and brown breasts. The standard called for a pure black breast in cockerels, so, seeing it would not be attained in breeding from the pure Partridge Cochins, the Black Cochins were crossed with the Partridge, and the line bred back. The result was the foundation of a cockerel strain for exhibition purposes in Partridge Cochins.

As the pullets had to excel in triple-lacing or pencilling of feathering, it was found that the Black-breasted Cochins only bred a blurred feathering that ran into one another, and to attain the proper pencilling, male birds with a certain percentage of red feathering on breast and hocks had to be used to produce exhibition females, and thus was started the foundation of double mating pens for exhibition purposes. Hamburghs followed suit. Henny-feathered cocks were retained and used for producing exhibition females. The meaning of "henny-feathered" cocks in Spangled and Laced breeds is that the cock birds are similar in feathering to the females, whereas in their ordinary feathering the males are entirely different. (See "Standards.")

Brown Leghorns also came under the double mating. This breed was introduced from America, *via* Italy, and the hard bricky colouring of the females did not appeal to the cultured tastes of the British breeders, so it was not long before a softer shade of feathering appeared as a mysterious surprise in the Show pens. That became the fashion, and to-day this breed is one of our extreme double mating breeds—more so in Australia than in England, for in three of our colonies we favour the American colouring of feathering in males and the British colouring of feathering in females. In England the extremes are not so drastic.

The exhibition Brown Leghorn females were crossed with Silver Duckwings to produce the soft shade of feathering. I have seen exhibition females of pure British blood in Australia at the fourth moult half-brown and half-Duckwing feathering, which proved conclusively the blending of the breeds. Plymouth Rocks are bred on double-mating lines, but some breeders use semi-matings. As far as I can ascertain, no foreign blood was introduced into this breed, it being simply a matter of selection. Silver, Partridge, Pencilled and Blacks are double-mated breeds in Wyandottes, and although it is possible to breed birds of both sexes for exhibition purposes from single matings in Silver and Black Wyandottes, it is almost an impossibility in the Pencilled varieties.

These are most of the breeds that work under extreme double matings. A certain amount of selection is used in Orpingtons,

Leghorns, Minorcas, etc., used in the females for producing comb, lobe, etc., but the feathering is not interfered with, with the exception perhaps of Buff Orpingtons. The real meaning of double mating pens, is pens mated up of different feathering. Unfortunately, the introduction of double matings have not been any benefit to the breed in public opinion. All of the breeds coming under this category have declined in public favour with perhaps the exception of Silver Wyandottes in Australia and New Zealand, and Brown Leghorns in Tasmania.

The birds are certainly improved by double matings, but the public, not being educated to the mysteries of the term, become confused and annoyed when they are asked if they are pullet or cockerel breeders, and they seem to think some underhand work has been going on, not having any education of scientific poultry culture, or the ability to grasp the technical term, they drop—as one man told me—"Algebra and Mathematics in Fowls, he never learnt the stuff when he went to school." The blending of cockerel and pullet bloods should not worry the farmers and others who want birds for utility purposes. It is really an advantage as they have a complete outcross for producing vigour, but the fashions in poultry to the fickle public depend upon the fashions of the show pens, and the number of advertisers of certain breeds in the Press, the reports and articles of writers. Double mating breeds will never be popular, because it calls for brains, intelligence, and perseverance, and those gifted and provided by Nature in grasping the details necessary for double mating, will always reap the harvest, as the judging of marked breeds is more uniform than solid coloured varieties. It's rarely the element of luck and condition come to their rescue, whereas in solid coloured varieties, punctuality and suitability of soil in the growth of birds, will often beat brains and intelligence. Double mating to educated breeders possesses a charm or fascination of its own, the ideal they have to attain is high, but they receive genuine gratification and pleasure from the breeding of one bird of superior excellence, as they know it will be appreciated by all their brother fanciers, certainly it may create jealousy, but a big infusion of jealousy is necessary amongst poultry breeders, to put a spice of ginger into their systems, otherwise they would become lackadaisical.

The potentialities of double mating is a live proposition for breeders who are breeding fowls for recreation, amusement, or as a hobby; it is a magnificent tonic to weary, brain-fagged city people, as the feverish excitement that ripples through your system is the undercurrent of magnetism, replenishing the worn-out tissues of business microbe; all thoughts of daily worry, anxieties and toils are thrown behind when you come home and watch Nature clothing chickens in different forms of standard feathering.

You pick out some special favourite, and follow its career daily, not only tc see if your judgment is correct, but to ascertain if your blending of mating is acting, and a lot of the other chickens are

surprise packets, as they mature. Single matings will always be popular, and carry a bigger train of admirers and breeders; but for double mating breeds, the gifted scientific breeder will not have to breed in quantities, nor depend on the soil or punctuality of feeding, but on the blending of blood in his matings; that is the great charm, as when you have secured the correct matings line breeding in your reservoir, and by judicious introduction of fresh blood on the female side, you will always keep within reasonable distance of the top rung of the ladder.

Scientific double mating with suitable ground, and coupled with proper chicken rearing and management, is a combination that will keep any breeder on top, but often the best of breeders have to wait and experiment with certain strains of blood, before the combination results in success.

Every breeder has a perfect right to introduce his own particular style of double mating, and the matings that he is operating with will often throw very erratic in the yards of other fanciers, independent of the same lines of blood. Change of ground, environment and feeding will often effect radical changes for better or worse, as the case may be. Farmers rarely sow their grains produced on their own class of soil, but interchange with one another on different soils, and the stamina of fowls is greater if birds are introduced even of the same blood relationships, reared properly on different soils.

Unfortunately, double mating will always be used by breeders to secure specimens to conform with standard requirements in the show pen, and breeders have every right to adopt any method of mating that will give best results. I would rather run two separate single mating breeds than have cockerel and pullet mating pens of only one breed. Fortunately, the great charm of life is the different tastes and desires of the human race, and so each breeder wants to allow for the different ideas and tastes of his brother breeders, and let all work together, for the uplifting of poultry.

Ducks *v.* Fowls.

FOWLS have had so much limelight and kudos thrown on the screen of public estimation, that it seems folly to compare ducks to them; yet after reading this article I think readers will find ducks pay better than fowls, if in suitable localities, at considerable less outlay.

Ducks require a moist climate, free from extreme cold or heat for best results. That wonderful layer, the Indian Runner duck, requires no house accommodation at night in Australia, some form of tree foliage for wind protection is required, but from observation and experience no night shelter makes any difference to their egg production. Indian Runners have beaten our best laying White Leghorns out of sight in a two years' test, and also hold the records for six and twelve months' laying. At the test held at Hawksbury College for two years the pullets finished 200 odd eggs ahead of the Runners, but six months after they had reduced their deficiency and had 200 more eggs to the good, laying 400 odd more eggs in six months than the fowls, and at the time of year when eggs were dear. The totals were, for eighteen months: Ducks, 1,940; Hens 1,762. Indian Runners have the record of 958 eggs for six months in Australia, from June to end of November; and a record of 900, starting from April to September, at Cambridge, New Zealand, six birds in a pen; while in Western Australia they hold the World's record, 270 eggs per bird. My own pen of six birds, in their second year, laid 1,160 eggs at New South Wales competition, after a double moult.

The weight of eggs is also a big consideration. Hens, 22 ozs. to the dozen; Runners, 27 to 29 ozs.—a big margin in favour of Runners. The flavour of an Indian Runner's egg, fed on good food, is only slightly behind that of the hen.

Runners cost no more to keep than fowls, providing you can grow green feed or have means of obtaining same, as fully fifty per cent. of their food should be green, such as lucerne, clover, millet, maize or rape; meat in some form provided, and the cut green food crumbled up with sharps, middlings, bran and pollard. The cost of fitting up a plant compared to fowls is a mere trifle. Three-foot netting yards is all that is required, easy facilities for watering deep enough to bury their heads in completely, and if possible some way of giving a bath twice a week. No houses or scratching sheds, and little time wasted in cleaning yards. They always show a splendid profit during the winter months in Australia after their moult; they generally moult in February, and start to lay in April and keep right on all the winter, hardly missing a day. While the poor fowl is shivering in the cold, the

little insignificant duck is full of joy and vigour—joy to you because you see the profits every day, joy to the duck because she has so much of her natural food obtainable.

They are not troubled with one-eighth the diseases of fowls, nor are they troubled with vermin if kept reasonably clean.

They like roaming and foraging amongst overgrowths of grass and weeds, but can be kept in confined yards with almost as good results; a moist climate, with a rivulet running through their pens is ideal, with ground of sandy nature preferred.

Runner ducks, and in fact all varieties of ducks, are very nervous and fretful, and if laying they must not be shifted, otherwise they will stop laying, and Runners, if shifted only 100 miles away, often go into a complete moult. Don't be alarmed, as it is only eggs deferred, they will give them later, although some places they never take kindly to, as they have similar characteristics as cats regarding places.

A man will have easy working looking after 1,000 ducks, compared to fowls.

The chief work is growing and cutting up green feed, while disappointments and pin pricks are rarely experienced. The Buff Orpington ducks are also little behind the Runner; they require more feed, but they pay better in market operations.

Indian Runner ducks' eggs are of a good colour, showing a slight glazed or enamel surface; they can be made to look exactly the same as fowls', by washing them in a warm solution of washing soda and a little lime.

If fed right the flavour is purely a matter of sentiment, and the public secure more for their money. In the spring and summer there is no need, as pastrycooks will always give one penny a dozen more for ducks' eggs, as two duck's eggs go as far as three hen's eggs in pastry.

Runners are supposed to have come from India, where they had to forage over broad areas for their living, but all the same they don't mind cold as long as it is a moist climate. Continuous snow climates of winter may not suit them, but an odd fall or two, as we have in Ballarat, has never effected them in vigour, although it does effect the egg yield if kept up for a few days.

Ducks' eggs do not keep in cool storage for some reason or other, but they can be preserved in the usual ways I have mentioned.

If you only have a small capital and have a suitable place, secure the right strain of Runner, but there are a lot of frauds about that look like the genuine article, so if you find them a frost don't blame the Indian Runner, but your misfortune in securing the counterfeits. It is only experience, and a little experience, as long as it does not crush you, is often the saving of a calamity later on.

Five hundred Runner ducks on an orchard is a gold mine, and it requires only a little time to gather in their eggs; they will

forage all over the field and help to keep down a lot of pests. You will find them the most profitable tree on your orchard. No shelter required here, and as there are always grass and weeds growing in between and around the trees, they secure a big proportion of their living.

Market all drakes at ten weeks old, as if kept longer they lose flesh instead of putting it on.

The only drawback in Runners is that they generally breed three or four drakes to two ducks, but it depends upon your luck; there is no way of selecting eggs to reproduce females or males, as according to the latest scientific discovery it is only after five or seven days' incubation that the germ turns one way or the other, although I am inclined to be pessimistic on this theory. There is supposed to be an instrument for testing the male germ in an egg from females, but after trying the affair on a couple of bananas and tennis balls, of which some were used on females and others males, I decided that it was not reliable.

Runners can be hatched early in autumn, in fact for winter laying the following season, it is a splendid investment, and should be always taken advantage of, especially if you are short of your required number of ducks.

Do not run ducks and fowls together in numbers. I am well aware that on a farm they have a few of all, ducks, turkeys, geese, and fowls, but it is more a matter of sentiment and narrow mindedness than a progressive farm for the keeping of birds under ideal conditions.

No matter how charmed anyone is on any breed of poultry, if you intend to embark in poultry culture for a living don't have all your eggs in one basket. You will find when the tears of vexation are flowing over something that went astray in the poultry, the sight of the expression of the eye and the mannerism of an Indian Runner will heal the wound and keep up your spirits.

With the system of watering the duck pens from one main cock top once a day, or letting the water trickle all the time into shaded vessels deep enough for the ducks to immerse their heads in, you avoid the labour of carrying water, and you will have no detail work in any form. Again, the growth of ducklings is wonderful. At the age when chicks are liable to drop off (seven weeks old), the Runner duckling is practically reared. No egg eater, no feather eater, no fights that do any harm; they have a few diseases, but no vices; they are full of enjoyment, vivacious, and contented with a roam and a bath once a day. I recommend all those who intend making a living out of eggs in Australia to have the foundation of Indian Runners, and their venture will be crowned with success. I have never yet known a Runner duck farm that did not pay; certainly one or two tired of the locality, but with the right stuff Runners are the friends of the egg farmer.

Indian Runners have just put up a new world's record for egg

production, under government supervision, in New South Wales, viz. six birds laid 1,601 eggs in twelve months. If any reader wants a better result than this, I am afraid he is hard to please. However, the ducks do it with a twinkle in their eye, without any cackle or self aggrandisement.

Notes about English Methods.

THE following are a few supplementary remarks I am embodying principally for the welfare of English breeders.

I find there is but little difference in generalities, the principal one is in the intensive system, and I am giving the experience of English breeders on both sides.

The intensive system can be worked successfully in small houses, but not on utility plants, only one or two in backyards, as they can give them plenty of detail attention. The utility wave is advancing, and it is only a matter of time when the two ideals will be blended together.

South Africa can follow the methods in this book, as there is little difference to the breeding and rearing, the chief factor being catering for the health of birds in the rainy seasons. We have similar conditions in the North of Australia, and with the exception that male birds require to be introduced every two or three years from cool districts to keep up the stamina, no trouble should be experienced in keeping poultry for profit, but, of course, in some districts it would be a failure, in others successful. With an English market at the door while the glut of the laying is on, a big future is ahead for South Africa. South African breeders will find the treatment of birds during the rainy season in the articles on Diseases, and these also apply to other tropical countries. The intensive system should be a big success in South Africa, as the rains during the monsoons would not affect birds under cover, but good roofs would be required. The intensive system is a success in Canada and America, in fact, in any country that has dry atmospheres and ability to grow green feed. Cold is nothing, curtain fronted houses control that, and intending breeders can find out the style of house suitable for his own country and locality.

The standards inserted are English and they are in general use throughout the empire, though there are the different interpretations of ideas, but the foundation follows on similar lines. I am under a personal obligation to The Poultry Club of England for their courtesy in allowing me to use the standards for this book.

England's breeding conditions for rearing chickens are a long way ahead of Australia, green feed is prevalent in most of the counties all the year. Birds that are mated correctly will early in the year breed splendid specimens, then although the fertility may be better for hatching, still the power of transmitting good feathering vanishes, and the stock are ordinary, but they regain the power of transmitting good feathering again in the autumn, before they finally drop into moult, and it is during that period that autumn hatching could be successfully carried out. The one thing necessary is to use an early hatched cockerel on to hens. If you do intend using the same cock as in the spring, then he should

A COMBINATION OF BEAUTY AND UTILITY.

Mr. A. V. Irvine's strain, Onehunger, New Zealand.

have been removed during the summer, and given a couple of months rest before using again in the autumn.

I prefer an early cockerel, and they are easy to obtain even if you have not reared one yourself.

Again, the new demand springing up for *petit poussin*, or milk chickens, can be carried on all the year. After a breeder has hatched the stock for his own requirements, and supplied the public with day-old chicks, eggs, etc., he can turn round and, by introducing early hatched cockerels into the breeding pens, start

operations for milk chickens to sell at seven weeks old. As these chickens are forced along with special food preparations, containing a superabundance of carbohydrates or fattening properties, they need only have a limited run and very little ground is fouled.

A certain place could always be allotted for breeding milk chickens by themselves, so as not to interfere with any other part of your ground. Another thing is that birds intended for fattening do not require so much exercise. Sussex ground oats, milk and a little fat, are a fine combination for topping off milk chickens. Barley meal and maize meal are also freely used.

So far in Australia. *Petit poussin* are not in demand, but any progressive breeder could make arrangements with the best hotels. It does amuse me, that in England this year (1913), they had five weeks without rain, and they called it a drought, and yet the grass was green everywhere.

To-day (July 17th), almost a month after the longest day, it is as green as our spring, while in Australia three weeks before the longest day, the grass is brown and dried up everywhere, except on irrigated land or in the hills. Ground vermin are certainly a drawback in England. Rats, ferrets, stoats, weasels, foxes and stray dogs are the culprits, and chickens have to be securely fastened every night.

In Australia only stray cats as a rule do all the mischief, and a dainty fish supper generally settles the cat.

After careful consideration I find that there are many roads to fame and fortune, many hills to climb, and many paths to lead chickens astray. Soil, altitude, climate, conditions, hills or dales have all their peculiarities, while the months the chicks are hatched in and the shelter provided is another factor, to say nothing of hereditary organism of the chicks. There never will be a set formula for rearing chicks, each variety of fowls, each district, and each man are a combination of scattered units and not machines. The great art of breeding chicks is to understand the breed you are operating with, and whether you are forcing them into premature growth and early laying, or have the luck to select the soil and breed that respond to your methods of breeding and rearing. This is a powerful combine, the fitting in of the organism of chicks, soil, feeding, and the man. Put the chick on to another soil and the others fail to act so successfully, or *vice versa*. Alter your style of feeding, and again you meet with disappointment; there is no set rule, and it looks that each breeder has to work out his own salvation. Granted that there are plenty of good breeders who are using similar methods, but unconsciously one always forges a bit ahead of his opponent, and inwardly wonders why his stock outwardly may be inferior, but he reaches the highest pinnacle of the ladder, or often is egotistical enough to think he is the mascot, whereas the breed, soil, and situation are the principal factors. In some places where I have been the chicks would grow and thrive on lackadaisical feeding and methods, whereas only constant

supervision, strenuous and drastic methods will rear a single chick on some of the exposed soils in Yorkshire.

A man is certainly born lucky who unconsciously drops on to a breed and locality that help all his efforts, and he often pooh poohs the daily wail of the unsuccessful. The same conditions prevail in Australia, but not so acutely, as our weather conditions are not so drastic, but the combination is the keynote of success. The great trouble is that we are so prone to believe from reports in the various papers that some new feeding formula is working wonders, that since it has been adopted So-and-so has never lost a chick, whereas it is only that the writer has discovered that his previous feeding was wrong for his soil, bird and climate. He is not to blame, as such a thing never appealed to him, and being liberal, he wanted all the world to hear the glad tidings. Never mind what others are doing, if you are having good results. Let well alone, whether working for utility or show stock, intensive or extensive. In any case, never adopt any new methods until you have had experiments and experience; but, of course, if you know for certain it is not your own personal lack of skill, then, if things are not working harmoniously, alter the situation, soil or feeding formula.

Chicks are supposed to be fed twenty-four hours after hatching in England, but thirty-six hours, in my opinion, would be more suitable, as if a hen steals her nest, she always waits forty-eight hours before she moves out with her brood. Fireless brooders in England do not seem to be suitable for early chicks, the sudden changes of temperature are too drastic, but they are used later on. They believe in shutting up hens in coops, and letting chicks have free ranges. Outside of these incidentals, there is little that we have in Australian methods that will not suit England. I should say as the best money-making proposition as a side line for utility purposes, is the purchase of pullets, early hatched or forward birds of any breed or strain. They could be tested under my system for selecting layers, and all the rejects fatted up for market. Providing you can pick out birds free from disease and that you have separate yards and houses free from contact with your other stock, there is no danger, and an absolute certainty for a profit maker as a side line.

You can afford to give sixpence a head more than other buyers of pullets, who know nothing of selecting good layers from bad, and it is easily the least expensive proposition in starting, as you would lose little if you were a duffer in feeding or details. Start if you are inexperienced with fifty, and then note progress. In the meantime, buy your breeding birds or eggs of pure breeds to build up your foundation strains, as no man can ever come into fame or notoriety in the poultry world on keeping or rearing crossbreds, but for men starting who have little capital, it is the best investment I see in England. I should be very cautious about buying first cross pullets just ready to lay at three and fourpence each, unless I had

them on the deposit system, as I know pullets cost more than that for feed, leave alone deaths and attention, and advertisers cannot afford to be philanthropists.

I should expect to pay even in England four to five shillings each for birds within a month of laying. Don't purchase in full lay, as they will only stop when shifted.

The autumn rearing of chicks in England should be on these lines. If incubators are used, set sufficient hens at the same time, as they are better for mothers, owing to atmospheric changes at this time of year, than in heated or fireless brooders. The night changes rapidly from humid and close to crispness, and unless watched and controlled carefully, the chicks are likely to be overheated and sweated one night, and shivering the next.

Buyers of day-old chicks want to be sure that the vendors are absolutely reliable, as I find that only about 20 per cent. out of the many thousands sold are ever reared. Granted that it may be the fault of the rearers in a number of instances, still before purchasing I should inquire whether the firm has proper breeding stock, or only purchasers of eggs in the cheapest markets.

Buyers of cross-bred fowls are in the same predicament, many so-called cross-breds are really only mongrels, selected to represent the particular cross the client catered for, but here again experience teaches.

I find the *petit poussin* trade is not a success in September, as they have to contend with the game season. Personally I consider three months with incubators sufficient, after that it becomes a drudgery. Don't let your hobby or your business undermine your health.

In the intensive system, or under the semi-intensive, especially where dropping boards are used, great vigilance is required to watch for lice, especially in summer-time, but the streak of tar and oil under the place where the roosts rest is a deadly trap. Wherever wood work is used in floors, etc., it requires constant overhauling in the summer and autumn.

A lot of trouble still exists with dead in shell, more particularly in incubators, but even under hens we have the same trouble. It is not a microbe, that is certain, but defective germ cells, brought about by wrong feeding and weather conditions, although it seems strange that, if fowls are laying well in winter, the feeding can be at fault. My opinion is that for early egg production if the fowls are laying is to use male birds on alternative days, but the extra early bird is really only required for show purposes, especially if breeding for male birds, as they take such a time to furnish properly. It is far better to sell your eggs at a good price if you are out for utility than risk the loss of them by hatching too early.

White diarrhœa in chickens, if prevalent, is generally with those in foster mothers, and is caused principally by feeding on hard-boiled egg at any early stage, dirty conditions prevailing in incubator, or wrong heat in brooders.

Brooder chicks confined should not be fed on hard-boiled eggs; raw eggs and bread crumbs is the correct method, and a natural food. The other is indigestible, unless counteracted by medicinal grasses the birds are taught by Nature to eat. If England's breeders tried to rear brooder chickens on our dried grass conditions with hard-boiled eggs they would only meet with disaster, as white diarrhœa would be rampant. Confinement on wooden floors and hard-boiled eggs are a grand combination for graveyards in brooder chicks.

The dipping of eggs in a disinfectant, and cleaning of incubator I have commented upon.

Wrong heat or bad fumes in brooders are the other causes.

Eggs will often hatch 50 per cent. better in incubators if placed under turkeys or hens for the first ten days, and it is always worth a trial if the incubators are failing.

It is another remarkable coincidence that chickens always do better in heated brooders on extremely cold days than on mild days later on in the year, but the loss of vitality in the breeding stock between the seasons weakens the chicks. The first three dozen eggs a fowl lays in early winter or spring and the last two dozen she lays in autumn hatch the strongest chicks.

It seems strange, but I have meet breeders who use no shell grit for fowls, but the drinking water must contain sufficient lime for the purpose. Shell-less eggs are nearly always the result of internal fat and overfeeding. Intensive breeders want to be up early, as generally twenty or more eggs per thousand birds are dropped during the night, and shell-less eggs lead to egg eating. Of course if you cannot secure shell grit handy, just put a tint of lime in the water and a pinch of salt to the gallon, if you are back from the sea air.

Shell grit should never be put in mash, nor given freely to birds returning from show, and the latter should only have a limited feed allowed, as they are likely to gorge themselves after a long journey, but English birds do not have the long train rides like our birds have in Australia.

The quantity of grain feed required per bird varies. You will work this out for your breed and climate, you can hardly overfeed pullets if laying, the amount of mash feed is also approximate. Its no use for me to give fixed quantities, it all depends on the amount of green feed, scrap, meat, weather conditions and the general health of birds, whether in England or Australia, but Australian records are done on plain feeding.

Often fertility is weak through insufficient females in pen; a female that only lays 12 to 15 eggs before sitting, as a rule, only requires the attention of the male bird once. Providing she is ready, once every four days is generally sufficient in the season under any circumstances.

Useful Items.

Broken Limbs.

OFTEN a bird gets a leg broken, which, if not shattered too high up near the groin, is easily set by proceeding in the following manner :—

The breakage should be set to its normal condition, stretching the big toe a little if required. Bind up the fracture with strips of calico soaked in a solution of plaster of Paris and water the thickness of cream. If the plaster of Paris is not available, white of eggs or starch is recommended. After the first couple of bands around the fracture, do not pull the bandage tight, as it may cause the leg to swell, but if the leg swells too much, ease the pressure.

Keep the bird by itself, and in ten days the bone will knit, and the fowl can have the bandage off after a fortnight. Do not use wooden splints, but if splints must be used, cardboard is preferable.

Sending Male Birds Away Together.

If male birds are not intended for show, there is no need to have them in separate compartments, as by using binder's twine, or a soft string of sufficient stoutness, the birds can be hobbled and a half-dozen sent away in one coop.

This is also useful amongst breeding stock cocks on a utility farm. After you have finished breeding, collect all young stock cocks, hobble them in the evening, and put them all in one pen together, No roosts are required till they become reconciled to one another, which should be in a couple of days, especially if from the pens they are in they can see no females.

If one male bird is accustomed to a pen, and you wish to add another, proceed as follows :—

Whichever one you require to take command, hold him in your arms and spar up to the other. As he comes, keep hitting him on one side of the face with your open hand until he tires of the pastime.

Cock Crowing.

In suburban areas, on close, confined allotments, complaints are often received from neighbours who suffer from nerves, etc., of the continuous crowing of the cock, and asking for the cause to be removed to save further trouble.

The only way to stop this is to have a particular part of the house for your male bird to sleep in, and go out every evening and hang a board over his head, so that when he attempts to crow he will hit it every time. If that will not do, tie his legs together with a soft bandage, and put him in a coop and let him out in the morning, but do not keep male birds, except for breeders.

Fowls Sitting too Close.

If you find one of your broody hens sitting too close, so that there is a big risk of her smothering the chicks as they are born, add a couple of nest eggs—the larger the best—two days before chicks are due. The same plan can be adopted if the fowl is heavy.

Bantam eggs can be hatched under small fowls if this is followed, and a far bigger hatch secured.

Egg-Eating.

Eating eggs often breaks out as an epidemic, as fowls transmit the joyful find to one another by their language. I have often seen this occur even with fowls confined in different pens. They have all started eating eggs simultaneously.

This is either caused by their language, or by some microbe or germ, and the result is disastrous, as it generally happens in the middle of the breeding season.

Shift the nests, and make different ones. Cut the top beak of the bird, or birds, with a pair of scissors, so that it is nearly a quarter of an inch shorter than the lower one. Then, as a double-barrelled preventative, fill a couple of eggs with mustard and glue, and put one on the ground and the other in the nest, or pure mustard will do, and you should have no more trouble.

Another plan is to remove the white of the egg through a small hole, then introduce a spoonful of ammonia or bitter aloes and whiskey, shake it up well together; then go into the fowl-house, put it down without letting them see you do it, retire, and watch the result. They won't be looking for many more broken eggs, but in any case remove some of the top beak as advised. Of course, the eggs that are filled with mustard, etc., must be closed with a piece of plaster or stamp-edge before being put in the pen.

Keep the nest perfectly clean. Seaweed or pine leaves are the best as a nesting material. Sawdust is not bad, and tobacco sweepings from the factories are a grand preventative of lice. Turn the nest towards the wall, so that the interior is darkened.

How to Make Old Fowls Tender.

When you kill an old male bird or hen for eating, let it hang for twenty-four hours, then bury it completely in the ground for a similar period without removing the feathers or organs of the bird, then unearth, and plunge it into scalding water for two minutes, which will make the feathers easily come away.

Cut or snap the front of the bird's legs, so that you can see the sinews of the legs. Pass the bent part over a stout hook, which is really hanging the bird by its broken calves. Give a strong jerky pull, when the whole of the sinews, which makes the legs so tough when they are left in, will be removed. Then boil for three hours, putting a pinch of soda in the water.

Another plan, although not quite so effective, is to give the bird a tablespoonful of vinegar the night before it is killed, but give no food, and then, instead of cracking its neck, remove the neck with an axe or tommyhawk, or bleed it after cracking its neck.

To boil old fowls properly, let them boil for an hour one day, leave them in the water till the following, and then give them the extra two hours, and you will find they are appreciated and a long way ahead of the majority of restaurant chickens.

Crooked Toes.

Often a fowl or turkey is born with a toe deformed, or through some accident it develops the twist, and, if a good bird, it is advisable to fix it up, so as to correct the deformity.

To do so, cut out a piece of stout leather the shape of the toes and foot, and fasten the toes to the leather with darning wool or some soft binding. If the toe or foot swell, you will have to remove the pressure from the middle. Use your judgment, for if the swelling gets bad, you would have to remove the leather altogether for a few days, then try again, and keep the pressure on the nail of the toe.

Removing Spurs.

Most cock birds should have their spurs removed, more particularly the breeding birds, as they often prevent good fertility. Put two potatoes in the fire and roast them well all around so that they are hot throughout, run the spur through a bit of rag, wetting it with cold water, and tie it round leg. Then run a nick with a sharp knife round the spur on the horn part, but as close to the leg as possible, then apply a potato to each spur; leave them on for a couple of minutes. Remove, take hold of spur, and with a sharp twist it will come away.

Have a poker on the fire, and when red hot burn the bony point of spur to your liking. Have confidence, as there is no pain in the operation for the fowl. The red hot poker can be used for the whole operation, but I prefer the potatoes.

If you find that after using the potato the spur does not come away easily, you have not nicked the spur all round properly, and it requires another touch.

Feather Eating.

Fowls, when coming through moult or in the spring of the year, develop a craving for animal food, and often when animal food is given them, maybe through an extra dry or extra moist atmosphere, the craving still remains; it certainly is an epidemic at times. I have seen it break out simultaneously in different pens on the same day, and in each case the hens had removed nearly all the feathers from off the legs and breast of the cocks which stand

there without a murmur while the hens strip him to nakedness. Any fowl will often swallow a feather from off the ground, but that is not generally a vice; plucking feathers from one another constitutes vice.

Remove the bird or birds which are the guilty culprits, and these can generally be picked out as they have lost none of their feathers. If it is imperative to keep the birds together, then you will have to make up an ointment of cocoanut oil and bitter aloes, and anoint all birds in the pen by smearing this all over the feathers. The craving, if attended to, rarely lasts more than a month, unless you cater for it.

Removing Combs.

If the comb becomes a hindrance, develops some disease, or falls over, then remove it. The bird is far better for the operation, and will make twice the bird in the breeding pen.

To do so tie the wings together, then holding the two legs firmly in your left hand place the comb of bird on a solid bit of wood, and with a sharp knife or razor start cutting from the front. Keep close to the beak, then rise in a curve towards the centre of head right over the eye. Here you should be three-quarters of an inch from the head, then gradually bring it closely to the head again as you finish. The reason why you keep up on the centre of the head is that the principal vein spurts up there, and if you cut in too close it takes too much out of the bird, besides, when finished and healed, the crescent form of comb looks more symmetrical.

After a week or fortnight the bird will be ready for the breeding pen.

Giving Mash.

Never feed mash or soft food on straw or broken litter, otherwise the birds will become crop-bound. Use a tin, board, or sack to place it on.

Testing Eggs for Freshness.

If any householder is doubtful about the freshness of eggs, it can easily be tested by following this direction. Into a dish of cold water place all the eggs; if they lay perfectly flat on their sides, they are absolutely fresh. The older eggs will gradually rise on to their ends, but these are good for cooking. Those that rise to the surface and float should be discarded, as this shows they are from six weeks to two months old. By adding salt to water you can have a very sensitive test.

Preserving Eggs.

The following plan is one of the finest methods for preserving eggs, and will easily pay anyone a handsome dividend on the outlay of this book.

The time to operate is in March and April in Australia, October and November in England, Canada or United States, or in the fall of the year in any other part of the world. *At this time of the year* eggs are at *normal prices*, with a tendency to a rising market; in any case, I have never known it to fail. You can buy eggs from your neighbours, providing you are sure they will be fresh, and use all your own eggs as well.

It all depends how many you have, but if a kerosene tin of water is let come to the boil, and you have the eggs in a sugar bag you wish treated, then all is ready. Make sure the water is boiling, then dip the eggs in and out again so that they are all covered; repeat a second time when the water boils again, then let dry; any number of eggs can be treated in this manner. After the eggs are dry each egg is smeared all over with cocoanut oil, using a bit of flannel, then wrapped in tissue paper, put in boxes, and kept in a cool place till you require to sell them.

Before selling the eggs they are washed in warm water with a certain amount of washing soda; this gives them the surface of new laid eggs. In Australia I have always sold these eggs from Easter-time onward, but all are sold inside of six weeks, and the eggs are as good as any eggs a week old.

The profit derived after paying all expenses is 50 per cent., and is a nice little dividend to collect for the little extra work entailed. There is no speculation about it if these simple methods are followed; it's an investment, and sufficient pocket money can be earned to pay for a fortnight's holiday in the hills or at the sea-side as a reward for your little toil, generally all-night work in my experience.

To retain the eggs to perfection after smearing with cocoa-nut oil, they want packing away in air-tight tins or cases to exclude the air.

If they are unfertile or the germ killed, they keep a fortnight longer under ordinary conditions than fertile eggs, but the great secret in preserving eggs is to exclude the air to stop decomposition.

If you cannot obtain cocoanut oil use white vaseline.

In Canada, United States, Britain, or the northern countries of Europe, I presume the eggs will be sold before Christmas, but breeders in each particular country will know that to work this properly they will use it before the sharp rise in eggs takes place, and even if kept for four months these eggs can be sold for preserved.

For preserving eggs in the ordinary way use Ovo, a splendid trade composition, or Waterglass is also a good preservative.

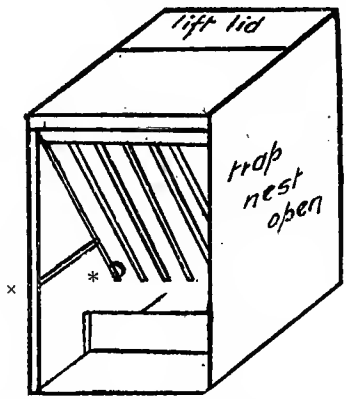
How to Fix Up a Comb of a Male Bird.

In single comb birds brought into show condition, the extra excitement and heat of building will often spring the comb and make it too heavy for the cockerel to carry in an upright position.

The bird must have cooling medicine immediately it returns from the show, and be cooped up in a place that is well ventilated, preference being given to a coop of fair dimensions, wired in all round, placed on a grass plot. The bird can be allowed out on free range for five or six hours a day.

If after a week the bird shows no improvement, to save the bird for breeding remove comb, but do not allow a bird that is intended for future exhibition more than a week's change, otherwise it will go back rapidly.

But with this treatment the comb should correct itself, providing it does not fester or canker. If that is noticed, then immediately wash sore, and anoint with solution of liquid bluestone. If it is too far gone remove the comb, as it is



× A stick to hold door up.

* The nail on end lath, which falls down and hangs when the hen is trapped, and hits up against inside bit of wood and prevents another hen going in. It has to be set each time loosely.

cruelty to the bird, and will act the same as blood poisoning. Comb-guards can be bought properly constructed by appliance makers, and should be used if necessary, but small flannel pads would have to be sewed on to correct thumb marks or hollows in comb, to bring the comb upright.

Liquid bluestone, or sulphate of copper, is made as follows: Piece size of little finger nail ground up, and put in two tablespoonfuls of water. This will always cure canker of throat or outside canker if taken in time.

How to Fix Up a Comb of a Female Bird.

Very often the comb in the above breeds will not hang properly on the side, but will crease and fold, overlapping on the head. If the bird is only an ordinary specimen there is not much need to trouble with this, still, even in a breeding yard it looks ever so much better to have the combs hanging properly. When the combs are springing, examine them to see if they have a tendency to fold, if so, each evening rub in some sweet oil, and gently train

the comb to the side. The secret here is to train the comb to the side the base of the comb is lying, and not to the way the serrations are lying; this is generally where the mistake is made. Gently work it each night, and you will find it starting to lie right in about seven days' time. If the comb of the bird is well out before you notice it, it would be better to sew the comb to the neck with one stitch of thread. You will have to hobble the bird for a couple of days, till she gets accustomed to the ticklishness.

You will find these instructions simple and of considerable benefit, as a comb hanging the right way makes all the difference between winning and losing in the show pens, especially in keen competitions.

A Good Whitewash.

Probably the best recipe for a good whitewash for use in the interior of fowl houses is as follows. It not only destroys all vermin, but makes a nice uniform colouring in the interior:—4 lbs. of caustic soda, 8 lbs. of resin, 2 pints of kerosene, 12 lbs. of lime, 3 lbs. of salt, 1 quart of oil (if not obtainable 2 quarts of milk), and 6 lbs. of whiting.

Put 8 gallons of water in the copper, boil, then add caustic, grind resin to a powder, add the balance, then boil for two or three hours. Then add 30 gallons of water, and put on with long handled brush. Keep your hands out of it as far as possible, using an old pair of gloves. It is preferable to use warm. Add whatever colouring matter wanted, but a light blue is the best colour for keeping away flies. For outside work discard caustic soda. This can be used with a syringe.

Cleaning Legs.

To clean legs of fowls wanted for show use warm water, soap, a tablespoonful of kerosene, and a little washing soda. Remove all dirt under the scales with a small blunt splinter of wood, then scrub well with the mixture, and you will have a splendid finish to your bird, and often finish over a superior bird neglected. Cold water and soap are best used on combs; it lasts better if birds are travelling a distance, does not collect dust, and shows no greasy appearance. Greasy combs are an eyesore, and some of the ointments used turn the comb pale in colour after a few hours. Finish up with cold water—the cooler the better—and dry thoroughly.

Colour of Chickens.

Numbers of people are often non-plussed at the colour of chickens. They will find this a guide.

In all white varieties, except White Rocks, the colour is from dead white, cream, or creamy yellow; the latter generally turn out the best birds as they mature. The dead white coloured chicks are too creamy on back and neck hackle when matured. White Rocks often throw chicks of a bluish-grey colour. These are generally the best coloured birds in future life. Black Orpingtons throw black and white chicks with piebald legs, the white predominating under the belly and on wings.

All buff fowls throw a buff coloured chick, either self coloured or with a stripe of darker shade.

Silver Wyandottes throw black and white chicks, or black and bluish wings and colour underneath. These are generally the best coloured birds. Light Brahmas and Columbian Wyandottes white, with a touch of black on wings or down saddle. Black Hamburghs and Minorcas fairly dark, some white showing in Minorcas at times, but very little in Hamburghs.

Brown Leghorns and Pencilled Hamburghs brown, with stripes of colour. Dorkings, Duckwing Leghorns, Silver Pencilled Wyandottes, and Dark Brahmas all grey, with stripes down back. Anconas, Spangled Orpingtons, and Houdans pure black and white, extra pretty as chickens. Black Leghorn and Black Wyandottes have piebald legs. Black Langshans, Modern or Croad, black and white feathering, legs often piebald. In nearly all buff chicks the legs show different characteristics. Sometimes Buff Orpingtons will show yellow, but they turn white as the bird matures, or *vice versâ*.

Plymouth Rocks are similar to Silver Wyandotte chicks. Game fowls and bantams, according to variety and colour, will follow on similar lines.

Green Bone.

I am not a believer in giving fowls green bone to make them lay, that depends upon the pedigree structure of bird and its health; once they are laying, especially in winter, green bone, ½ oz. per bird a day, is appreciated, especially by the fowls that are laying. It must be given absolutely fresh, or you encourage diarrhœa. If you cannot grind the bone yourself, it is preferable to use some of the advertised spices, such as Singer's Egg Producer, Manning's Salvitus, or Turnbull's Stamina, but first your bird must be healthy.

Green bone is a powerful concentrated food, nearly all of which goes to build the ingredients of eggs, but don't overfeed.

Green bone can be bought at Poultry Supply Stores and butchers', but insist on having it fresh.

How to Test a Fowl if Laying.

A fowl will often look fit for laying, and if she does not lay you are wondering if she is eating her eggs, or whether some of the other fowls are doing so, or whether vermin have discovered your treasure. To ascertain if she is laying, catch her in the morning and insert the little finger in the vent for an inch, and if the egg is there she will never hold it longer than two days, besides, you can catch her the following mornings, or better still, in the evening, and if she has passed the one egg and it has disappeared, the shell of the other will not be hard.

Have your nail cut short, or better still, use a finger stall, then you will not hurt the bird.

Early Moulting.

Fanciers who are only running one or two male birds of the one breed they are making a speciality of often want the males through the moult early so that they can show them at the early shows and use for stud purposes later on. The fancier who can secure the wins at the early classical shows generally reaps the bulk of the sales, as it is always a good advertisement.

If a fowl has been reared early, the chances are it will moult fairly early, but to make sure proceed on the following lines:—

Construct a coop, 3 × 3 feet square, a framework of wood made with 2 × ½ inch batten will do, no bottom, and cover the lot over with white calico, and early in the fall confine the bird in this on days when the sun is shining.

The white calico draws the heat and it affects the feathers, which after a few days begin to fall out rapidly, and in less than a fortnight the bird is in full moult. Coop the bird on grass or on a bit of scratching material, bringing it in at nights. This method is only effective in the sun's rays.

Avoid extremely hot days, and have plenty of water in the utensil. Change your feed diet entirely, keeping to oats only as far as possible until the bird is well into the moult, then you can revert to your usual formula of feeding.

This is a grand arrangement for male birds. With females care will have to be taken to reduce the food again once she is right through her moult, otherwise she will become fat internally.

Breeding Percentage of Pullets.

For breeding a large percentage of pullets mate up cockerel with two-year-old hens; a two-year-old cock will give almost the same results. Cockerels mated with early pullets will give an overplus of cockerels. The more vigorous the stock, the bigger tendency to throw cockerels. Late hatchings produce a super-abundance of pullets as a rule.

A PEEP INTO LANCASHIRE.

Mr. S. C. Robertshaw's Ideal Breeding Quarters. (See advertisement.)

I have heard it said that if only one, two, or three females are run with a cockerel the greater the tendency to throw males, but no reliability can be attached to it.

Cattle breeders state that if the right testicle is removed all the progeny will be males, if the left testicle all females, but it may be only a romantic dream.

Removing Side Sprigs, &c.

In breeding Minorcas, Leghorns, or breeds of the single-combed variety, false serrations of combs, side sprigs, etc., are an eyesore. If you overhaul young chicks at six weeks to two months old, these can be removed by a sharp pair of scissors and no mark left in after life, but if birds are left later the glazed mark of the cut will be detected by keen judges.

Protein and Carbohydrates.

Fowls' foods consist principally of mashes and grains, which come under the heading of Protein and Carbohydrates.

Protein comes under the heading of nitrogeneous compounds, such as are required to feed laying hens to form the balanced ration, or, in plain words, it is meat, green-bone, meat meal or buttermilk. Peas contain a large percentage of nitrogen, and where meal or its substitutes are not obtainable, it is advisable to use this grain four or five times a week, especially in winter. Protein goes to form flesh, repay waste tissues, and is the principal factor in white of eggs and part of yolk. Vegetable compounds enter largely into the make-up of the yolk of the egg. This will be distinctly noticed if birds laying have been kept without green feed for some time. The yolks will be pale in colour, but after giving green feed the yolks become golden to a rich orange in colour.

Carbohydrates, oil and fats are compounds formed by chemical fusion of carbon, hydrogen and oxygen; cellulose also acts as a food carrier, and is chiefly the fibrous husks in chaff, bran, grass, etc. One pound of meat is equivalent to four pounds of barley in food for laying hens, but barley must be used sparingly, and potatoes are not an egg-producing food.

Salt, sulphur and charcoal are all chemicals that act on the different organisms of bird life.

Sulphur works on the blood, keeps the circulation even, and helps the growth of feathers. Charcoal is a bowel corrective, and acts as a filter, drawing all poisonous compounds that the fowl may have taken into its system unbeknown to the owner by absorbing the poison, and prevents it getting into the life-blood. Salt is necessary as a tonic to feed the blood and prevent it from becoming weak in natural elements. If fowls have access to brackish water, like we have on a number of farms in Australia,

no salt is required, or fowls within twenty miles of sea coast atmosphere require no salt, as they obtain all they require from the atmosphere. Too much salt is injurious, prevents laying, and develops thirst unnecessarily.

If a bird is over fat and laying, she will often pass soft-shell eggs. Grits (both shell and gravel) are a tonic for indigestion, and they also contain chemicals for the requirements of bird life. Fowls can do without shell grit if their drinking water has been purified with lime; still, you will notice that, if birds are penned off, the ones laying consume more grit. Ducks eat a tremendous amount of shell grit when laying, and it should always be handy to water and the place you feed from.

Killing Feather Lice.

If you cannot obtain insect powder handy for dusting fowls, the following recipe will kill the vermin:—

Let a pint of kerosene absorb as much camphor as possible, ground up. Hold the fowl with head away from you, and with a paint or varnish brush give the feathers a thin coat all over, brushing down the quill of feathers. The fumes will kill the vermin. Do not touch flesh, and only apply lightly, as an overdose may kill the fowl. For notes on insects, red mite and ticks, see chapter on Diseases.

Plucking Fowls.

The easiest method to pluck fowls or ducks is to plunge them into boiling water which has been put into a bath, tub, or bucket to reduce the temperature. Fowls should not be plunged into water that is absolutely boiling, as it softens the skin too much. Plunge the bird in, shaking it about to absorb the moisture thoroughly; then remove, start plucking feathers, operating on tail and wing feathers first, finishing up with the small feathers. If the feathers are wanted, they can easily be dried afterwards, finishing up in the oven. If birds are for export or for sale, after plucking again immerse the bird in water just on boiling for two or three seconds, then remove and plunge into cold water, leaving it there for twenty minutes. It does not affect the taste of bird, nor does it harden the skin, and the sudden change from extreme hot to cold expands the flesh and makes the bird look plump.

To Avoid Broodiness.

Broody fowls are rather a bother at times, so to cool their system and prevent the feverishness feed the layers on plenty of chopped up green feed served in the mash.

In fact, the utility breeds on a utility farm at the end of spring and all the summer, if fed on half green feed and pollard or sharps,

chopped up together, with the addition of Epsom salts once a week, will stop 100 per cent. of broodiness.

The green feed must be chopped up and served in the mash. It does not act the same if fed by itself. Feed grain at night.

Broodiness is more prevalent on some soil than on others, as there is something in certain soils that induce broodiness, even the non-sitting Mediterranean breeds suffering. As it is not possible to remove the soil, you will have to resort to my methods for reducing the feverishness, as broodiness is a sort of fever. Again, it is often an hereditary taint, but it certainly can be cultivated or controlled, according to your environment and feeding.

The Medical Egg.

IF anyone is situated close to a city, and likes to augment the price of eggs, the best proposition is the above. You will set aside certain pens of birds that lay a highly-coloured tinted egg, such as White Orpington or Croad Langshans, or any birds that you have suitable, and feed these specially for the trade. In the meantime forward a circular to all the doctors and nurses in the city stating you are catering for that particular trade, and if necessary show them the size of egg, colour and the analysis.

Feed the birds on ¼ oz. of onions every second day, plenty of lettuce, but not too much, and don't overdo it with lettuce all at once, let them become used to it.

In the mash food use a saltspoonful of sulphur every third day, gentian root a small pinch every other day, and a ¼ oz. of quinine for a dozen birds twice a week. The whole of these ingredients are transfused into the egg, and the result is an egg full of strengthening medicinal properties for the invalid, and are highly appreciated.

Onions contain magnesia, iron and other medicinal properties, and the gentian and quinine are all grand tonics, and are assimilated and digested by any convalescent, and you are sure of a big trade in all branches of your farm.

Of course you will receive an extra price for these eggs, generally from threepence to sixpence a dozen according to your locality, etc., and it is extra profits for very little more work and outlay.

Moulting Birds.

TWO sorts of hens are profitable, the early and the late moulting birds. The vagaries of the weather is often responsible for moulting conditions.

In uniform years, when seasons are average in temperatures for the months of the year they represent (I am referring now to summer and autumn conditions), the moulting is fairly regular, and in most instances fairly early.

In changeable summers, acting under pressure of monsoonial disturbances, the moulting in a number of females is extra early, the humidity of atmosphere starts early moulting, whereas in cool summers, with above the average amount of rain, the moulting is prolonged. To encourage moulting the birds want a change, from intensive to extensive, or *vice versa;* this, coupled with a difference in feeding, accomplishes early moulting. All the same there is a big difference between early moulting and a premature moult, as the latter would probably mean another moult. After removing young birds, alter the feeding menu, substituting oats in place of wheat, and feed very lightly, burying it in litter. Once they have started to moult change your tactics in feeding menu, as there is a big drain on the system, while the fowl is cultivating new feathers.

Feed—warm mash in the morning, a scatter of grain at midday, and small handful of boiled maize at night, or wheat will do. Give sulphur twice a week, boiled linseed, or, better still, instead of bran use oilcake in mash, and then there is no necessity for linseed. Salts twice a week as a tonic, and instead of grain at midday twice a week a small scattering of hemp seed, not more than a teaspoonful per bird. This will help to cultivate the new feathering, and help you to build up a profitable hen; but if your hen is thick in skin under the pelvis bone, except a valuable breeder, pass her out for the market.

After the bird is three parts or more through the moult, gradually reduce the feed, until you are giving your average feeding menu, mash in morning, grain at night; but the whole secret now is to feed lightly, otherwise the bird having nothing to do will put on fat, and will become useless as a layer or a breeder. Once she starts to lay, everything can go on as before, as a laying hen if she has exercise rarely becomes overfat, as she is passing out all she is taking in, and there is no overplus, but it is always best to have them a little underfed than overfed.

If they want a little more, give them a turnip, a mangold, or some extra green feed, as eggs are mostly composed of water, and in root foods they obtain an extra inducement to lay. In cold weather root crops are particularly beneficial for this purpose, as the fowls do not drink much, and no water no eggs. The birds should be put into the places you intend using for them before they have finished moulting, as you never want to move fowls while they are laying.

Breeds of Poultry.

I AM not entering into a detailed account of all breeds of poultry, but just giving a short description of the most popular fowls throughout the world, describing the peculiarities of each breed that I have noticed in breeding and rearing.

The standards of all the popular breeds are in this book, and they will give you the bird in perfection, but the best system of studying standards is to have a live specimen, and follow the standard by observing the bird.

The interpretation of the standards will always create arguments, as rarely will two judges see eye to eye on all points of the standard. If both are breeders of one particular variety, one judge will have had considerable trouble in eradicating some bad fault, and he will be inclined to give the particular fowl extra benefits on this point, while the other judge will have had similar experiences with another point and no trouble in breeding the point the other judge is so keen on, while another judge may come in and have some other fad, all done unconsciously perhaps, but this is the pitfall of all specialist judges.

There is little wrong with the standards. The trouble is that Australia, America, Africa, and England have different ideals and conceptions of the standards. England is more or less cranky on bone and size; America is rather the other way, especially in non-sitting varieties; while Australia is a mixture of American and English ideals, with a fad or two of her own thrown in. America certainly has the best of it. Her show birds are her utility birds, while England's show birds, in a number of breeds, are not good for utility birds.

The combined show and utility bird will be the foundation of the feathered world, as the double-barrelled proposition has a big leverage over a single-purpose fowl. It will die hard in England, but it will come eventually. The breeding points of fowls is a matter of selection. If for utility purposes you have my articles; if breeding for show purposes scientific and line breeding. The principal thing in all marked fowls is ground colour; in all self coloured type and size. The other requirements are experience, determination, punctuality, and cleanliness.

Anconas.

One of the non-sitting breeds, and certainly a popular variety, and as utility fanciers have no time to study feathers, etc., the Ancona, if given the same chance as the White Leghorn, is equally as good for egg production. They really belong to the Leghorn family, as they are "Spangled Leghorns" working under a *nom de plume*.

They have all the characteristics of the Leghorns, are quick growers and featherers, precocious, flighty, especially so when running wild, but they are exceedingly tame if incubator hatched and reared in brooders. They can, by selection, be bred to equal the White Leghorn of Australia. Their eggs are white, while the size is better collectively than the eggs of White Leghorns.

As chicks they hold no equal for appearance and colour, and they rarely show any broodiness.

Whether Single or Rose Comb there is little difference in their usefulness, as it is merely a matter of sentiment or partiality for special head-gears. The ground colouring is black with small V-shaped tickings of white at end of feathering, but the trouble in breeding for show purposes is to avoid too much white. However, an excess of white will not trouble utility breeders, but it is the foundation and the groundwork of satisfaction to show breeders when he has a solid colouring to work on, and as a good finish, black sickle feathering (for description *see* "Standards"). Best crossed with Spangled Orpingtons for utility; Black Leghorns as layers. Colour of eggs, white.

Andalusians.

One of the non-sitting varieties belonging to the Mediterranean section.

Not so quick in growth as Leghorns, but they make up for it in after life, as they are better layers and stronger birds in their second, third, and fourth year than Leghorns.

Their eggs are certainly the largest of the Mediterranean breeds, far superior to Leghorns, and they could also be bred to show as good a record as Leghorns, by selection, for a utility farm in Australia. The principal drawback to the Andalusian is in the colouring of chicks, as they throw sports of blacks and white with black feathers, which are not an attraction.

It is a strange feature of this that nearly all the black sports are cockerels, while the whites splashed with black are pullets, and generally extra good layers, and if starting a utility farm on Andalusians, I should ask breeders to save all the white sports. Nature robs them of their correct feathering, and as a recompense makes up the deficiency by giving them more work to do in shelling out eggs.

The black cockerels mated back on the white sports will breed blues, but here again Nature plays strange freaks.

No other breed of fowl of the non-sitting varieties, other than Andalusians, will breed the number of show birds from a given number of chicks when they are born blues. This is especially noticeable in pullets, and to make up for this the black sports suffer. They are rarely as good in comb, lobe and head points as the worst of the blues bred.

The blacks are always pinched in lobe, small in comb and wattle, while their colour of feather of a sooty hue is never attractive.

Nature robs one in every point, and the lucky born blues reap all the kudos.

The females improve in feather as they mature, thus a moderate pullet will often make a splendid hen, and if you have a good pullet she is certain to be better as a hen, and I have seen them improve in colour, width of feather, and sharpness of lacing until eight years old.

Their great weakness is to go red in lobe and break in face, but they have a special standard for these points, and it is not a disqualification. The Andalusian, under the skilfulness of British breeders, has improved in colour and sharpness of lacing, and they are now a very popular fowl in the show pens of Australia.

For description *see* "Standards." Best cross for utility is with Silver Wyandottes. Colour of eggs, white.

Black Spanish

used to be a very popular fowl in the sixties and seventies, but the introduction of so much white in face and the loss of carriage in tail brought about their downfall, and the introduction of utility breeds finally ousted them from public favour. In Victoria, Australia, a club was formed for the awakening of the breed, and now it is the most progressive club in Australia. At the last Royal Show sixty Spanish were benched and £15 distributed in prize money, and two years before there was hardly a Spanish in Victoria. The club is a social one, and their latest move is forming a drum and fife band, the first poultry club in the world to have a band of its own.

Black Spanish are a non-sitting fowl, layers of extra large white eggs, and they can, by selection, become one of the best of layers. A rather quiet fowl, easily handled, perhaps a bit slow in growth of feathers, fair table birds, and a distinct appearance of their own. Their peculiarity of face is their great attraction, a bit grotesque, but full of magnetism in arresting the eyes of observers. Best cross, Minorca. Colour of eggs, white.

Dorkings.

England's premier table fowl, not maturing properly into type and feathering till the second season. Rather hard to rear in

numbers on a heavy soil if specialising sandy or sandy subsoil should be used.

A peculiar trait of their character is in chickenhood, when, as three months old birds, they suddenly develop pugnacious ideas collectively, and simultaneously they will all select one of their brothers or sisters and have a real ding-dong set-to. They don't do any real damage, but they are completely prostrated for a few days and go off their food, but gradually come round and make up for lost time. As cockerels running together this is also an hereditary trait of character, and they will start fighting any time, but in ordinary circumstances when mated they are not so pugnacious as many other breeds.

They are average layers of white eggs slightly tinted, medium in size, are rather slow in growth, especially feathers, but very strong in constitution if not pandered or overfed when moulting.

The life of a Dorking, especially females, is from seven to ten years; cocks, owing principally to strife, from three to five years.

They make a splendid table bird cross-mated with Indian Game cocks, and have won innumerable diplomas, cups, specials, etc., at table poultry displays.

For full description see *Standards*.

Best cross, Duckwing Leghorn, for eggs; Indian Game, table. Colour of eggs, white.

Faverolles.

Perhaps the most fashionable fowl at present introduced from France into England. From present prospects there is no danger of it being usurped by any other breed of fowl from France; the only other one worthy of note is the Houdan. It is doubtful whether any other utility fowl will respond so quickly in growth and development; they are extra rapid in feathering, especially the last or third dressing; they look little more than chicks one week, and the following are fully matured birds ready for laying. In Australia they are in full lay at 5½ months old, not individual birds, but as a collection, and there is more uniformity in their laying as a breed than in any other utility fowl. Certainly their appearance is a bit grotesque; their ear tufts and beards, coupled with their feathered legs, give them a distinction of their own, but handsome is as handsome does, they lay early, are noted for exquisite flavour of flesh, extra rapid growth, whether pure or crossed, and as a family or farmer's fowl an attraction, and they are always profitable.

The Salmon-coloured are a bit hard to breed to standard colouring, the White Faverolles is self-coloured, and although hardly the size of the Salmon, would look well as a collection; their uniform colouring and unique type would make a splendid balanced collection, and as a second fowl to keep on a utility farm for egg production, I can recommend this breed. No need for crossing. Colour of eggs, tinted. This is also a useful breed, especially for crossing.

Houdans.

This breed is one of the oldest and best of French breeds introduced into England.

It has a characteristic personality of its own, owing to the crest, which captivates a certain section of fanciers.

The ideal bird is rather hard to breed. The formation of crest is the drawback, as it always inclines to breed wide and straggly, instead of in a well-formed compact globular shape.

The intermingling of colours, viz. white tipping on black ground, gives the breeder something to procure uniform and even, as the white is always trying to show its superiority.

The birds should be mated a bit on the dark side, and in this breed I prefer cockerels with hens at any time, as there is nothing in a Houdan unless it has a fair size as a chicken. They are largely used for crossing, and I prefer the Ancona cross for egg producers. They are a splendid table fowl by themselves.

Hamburghs.

Black.

One of the charms of the fancy, beautiful in outline and symmetry, brimful of action and gracefulness.

The lustre of feathering is a revelation, the rich beetle green reflecting a wonderful sheen. They are a fairly hard feathered bird, which makes the surface from a little distance off look like a coat of burnished bronze green paint.

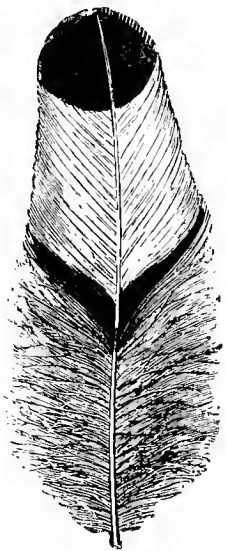
Their sickles for width and length make a wonderful finish to the bird. As layers they were known in England forty years ago, without any selection or special breeding, to lay on the average 200 eggs a year. If their laying powers were cultivated under the climatic conditions of Australia, they would have a big chance of beating the existing world's record, held by Indian Runner Ducks; at any rate, they could easily run alongside White Leghorns and require less to feed.

The principal breeding points are colour, roundness of lobe, purity of white, formation of comb and leader and tail carriage. Best cross, Minorcas. Colour of eggs, white.

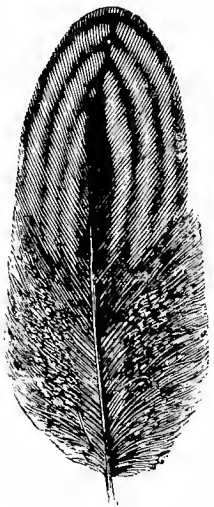
SPANGLES.

The Silver Spangle is also a very attractive fowl, built on similar lines, the blending of spangles, just lapping one another, is their *sine quâ non*.

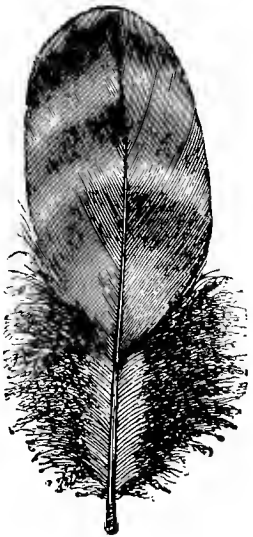
Depth of colouring with rich spangling of hackles on cocks and cockerels are one of the fundamental points, as the tendency



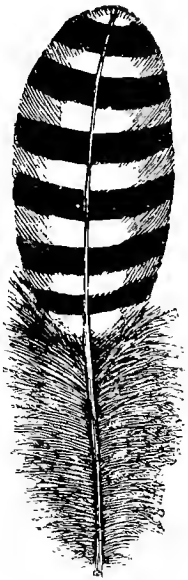
Spangling.



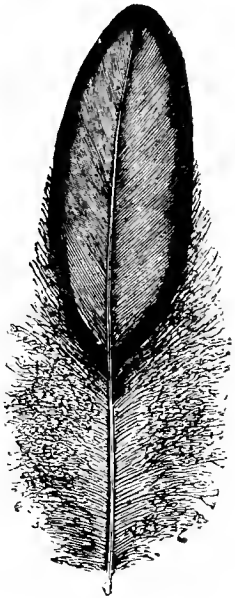
Pencilling
(Brahma).



Barring or
Cuckoo Marking.



Pencilling
(Hamburgh).



Lacing.

for birds not mated or properly cared for is to run light in colour, the hackles of cock birds running clean out of spangling. Size of spangling is a redeeming feature, as they gradually diminish in size, unless the breeding birds are carefully selected. They are also a good layer, and their egg is about the largest of the variety.

The Gold variety follows on with similar characteristics, but they are not so popular as Silvers. Best cross, Silver Wyandotte. Colour of eggs, white.

PENCILS

are found in both Silvers and Golds. The Golds run favourites of the two varieties, and it is about the only breed of fowls that have two varieties in which Golds are better appreciated than Silvers.

The only trouble in breeding Pencil or Spangle Hamburghs is that for show purposes they have to be double mated. The beauty of Black Hamburghs is that they can be single mated to breed both exhibition sexes.

If operating with Spangles or Pencilled Hamburghs, the best plan is to breed for cockerels, as often one or two females bred from pens mated this way come well up to exhibition points.

Pencilling of feathering is a beautiful sight and always attracts attention, the only trouble is that the Pencilled Hamburghs are small compared to the other varieties. I am not going into a detailed account of the technical points for breeding, as it would require a special book, but size and depth of colouring are the foundation. Best cross, Brown Leghorn or Campine. Colour of eggs, white.

Indian Game.

Perhaps the most attractive fowl in the world, the gladiators of the poultry brigade. For outline, symmetry and burnished feathering they stand alone; they find admirers from the aristocrats to the working man. Breeds may come and go, but the Indians will always retain a solid following. They stand alone for a cross with almost any breed for table purposes; their peculiarity is that the progeny is generally two-thirds pullets; breeders would prefer it the other way about, as there is unlimited demand for male birds.

The females do not lay a great number of eggs, but every one is a chicken, as the male birds are grand in fertilization. The females with short breasts and long tail feathers are the best layers. Unfortunately, the outline calls for a short-feathered bird to set off the type, and they become fat internally if fed too heavily while going through and after moult. They should always be given their evening meal in deep litter. Their facial expression and the wonderful quality of scales on the legs makes it hard to tell hens from pullets. The windpipe is the best guide, but

experienced breeders generally tell by their looks; still they can easily be nonplussed.

Indians lay a tinted egg of medium size, and are splendid sitters and mothers. Cockerels in some strains do not develop spurs properly till they are in their third season as cocks, they often have button spurs as two-year-old birds. Best cross eggs, Brown Leghorn; table, various. Colour of eggs, tinted.

Langshans.

Modern.

Not a popular variety in Australia, and not likely to be, as Australian breeders have a great objection to long-legged fowls. They are good winter layers of a lovely tinted egg, extra deep in colour and extra good in size. Rather slow at feathering and developing to maturity, fair table bird, nothing particular to recommend the breed as a profitable fowl, but it has certain admirers, who like its compact form, and the beautiful beetle green feathering. The variety breeds true to standard points, and they take little preparation for the show pen. Principally kept for the wonderful quality of eggs, both inside and outside, and they are a grand fowl for hospitals and institutions of similar description.

For description, see "Standards." Best cross, Minorca. Colour of eggs, very brown.

Croad or Chinese Langshans.

This fowl is supposed to be the direct descendants of the breed imported from China, without any introduction of foreign blood. A rather sweeping assertion to make, but such is the opinion of the oldest breeders of England. Not a handsome fowl for fanciers of beauty of shape or form, as there is a lack of symmetrical outlines and contour of shape, so noticeable in standard specimens of other breeds; in fact, the principal attractive features of Croad Langshans is a conglomeration of type that all other fowls ought not to be.

A judge wants a Croad with little breast or front development, and almost a squirrel tail, two traits condemned in any other utility breed; however, what are almost regarded as deformities in one breed are the *sine quâ non* in others. They, like the improved relation the Modern, lay the best coloured and flavoured egg of any breed, and are wonderful layers in the winter, act splendidly in hot or cold climates as they have extra large pores in their flesh, which contract or expand according to the climatic conditions. Breed very true to type, such as it is, take little preparation for show, and collectively, like their originators the Chinese, would puzzle even breeders to separate or identify one bird from another unless subject to detailed scrutiny.

They are good birds for utility poultry farms, and as a specialist to breed "The Medical Egg" for hospitals, doctors, and such clients, they undoubtably stand clean away from any other breed. They are rapid growers, fair table birds, and born winter layers if given any reasonable chance.

They hold the record in Australia for a two years' egg test in utility breeds as follows, for six birds: 1st year, 1,481; 2nd, 1,006; total, 2,487.

With all this record they are not popular in Australia, as Australian breeders prefer the non-sitting varieties when working for utility poultry farms, and white feathering is the attraction at present. For description, see "Standards." Best cross, Minorca. Colour of eggs, very rich brown.

Leghorns.

Whites.

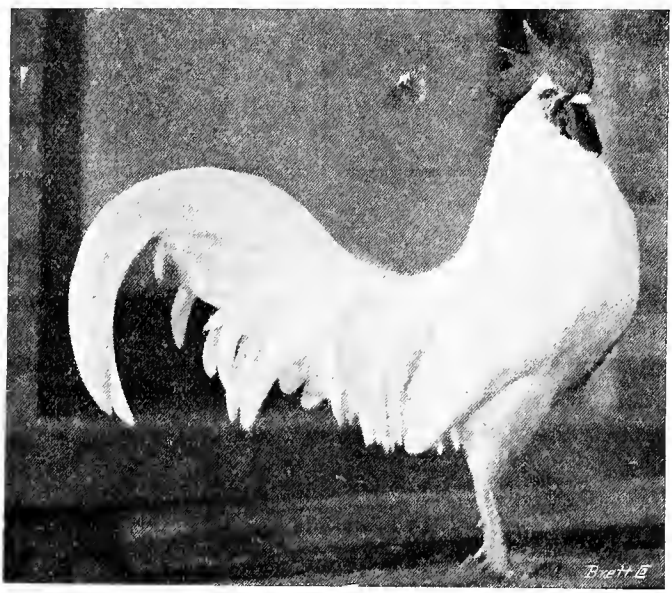
In America and Australia this breed of fowl is perhaps the most popular solid coloured bird of any breed. The largest classes in our show pens are generally to be found in the White Leghorns. They seem to always captivate the public whether running in the pens or on the show benches; no doubt the fluttering movement of the comb attracts, and this, coupled with its brilliant leg colour against a snow white background, fascinates the onlookers.

Leghorns, both White and Brown, always have been high in public estimation since they have been introduced to Australia. The climate no doubt suited the breed, and they suited the climate, so they incorporated, and between the two have conquered all other breeds for popularity and laying records.

For show purposes the White Leghorn is hard to breed ideal, and it is only after a lot of experience and experimental work that you can expect to come out with flying colours.

In selecting a male bird the principal points are: comb with good serrations, broad and deep four serrations is preferable to six, but five is the correct number, the base of comb should be wide, and set firm and solid on head, strong enough to hold the comb erect, the blade should not be long otherwise the comb is inclined to swing at back of neck, and the comb should follow contour of neck, without actually resting on it, neck arched, covered profusely with satin white feathering, body broad, full and rounded in front; this is the point difficult to obtain, as they generally cut away. Tail carried at angle of forty-five degrees, with width of feather, and sufficient length of feather for full flowing sickles. Legs well boned and set well on outside of body; knock-kneed birds are an eyesore, and breed inferior stock. Colour to be pure satin-white feathering all over, free from straw colour; lobes to be fairly large, set close to head, and cockerels should be free

from white in face, but if possible procure a sound faced cock bird for breeding, or as near perfection, coupled with other essential points, and avoid birds with long legs. The females to mate with this bird should be show specimens or as near as possible, "see Standards," but again have body and front. The head points must be the strong point, the pullets or hens for producing cockerels want similar type, but longer in tail feathering, head points are necessary and of special character, comb rising off head firm before falling over. The comb that hangs dead direct from head is no good to



SHOWING MARVELLOUS TAIL CARRIAGE ON UTILITY LEGHORN.

Mr. A. V. Irvine, Owner, Onehunger, New Zealand.

blend for breeding cockerels. Serrations three, four or five in number, but well spaced and with plenty of depth, lobes good. I prefer a less number of serrations than five on one side or another on breeding birds, as the tendency is to produce from five to seven serrations. Procure unrelated blood, then breed on the system of scientific mating and line breeding, and you will produce a strain of your own, only to do so you must start with top notchers. The idea is to have two pullet-breeding females that are show specimens, and two females, or three that have been selected for breeding cockerels, all mated to the one cock bird.

Principal breeding faults will be found in too many serrations of comb, small lobes, longer legs than necessary, body cut away in front—one of the hardest points in any breed of fowl to produce for show purposes, as it is the foundation of symmetry and graceful carriage.

Australian Utility Leghorns.

Through the competitions held all over Australia, Tasmania and New Zealand the White Leghorns have become famous as wonderful egg machines collectively. Marvellous records have been made on a simple diet. The climatic conditions of these countries have helped the birds; in fact the atmosphere, as well as the climatic conditions, seem to have inspired the breed. This, coupled with line and scientific breeding, single penning, etc., popularity, and their charming mannerisms, are a grand combination to make any breed the idol of breeders. Their wonderful fertility, vigorous growth, solid colour of feathering, non-sitting propensities are a jewel-box for breeders of egg-production, and their eggs are of uniform size and hatch well in incubators.

White Leghorns were born great, and they have had greatness thrust upon them. Their record of 1,566 for six pullets in open competition must be an eye-opener to other countries not blest with our climatic and atmospheric conditions, and considering they are all fed on the ordinary diet of bran, pollard, mixed with meat soup in the mornings and principally wheat at night, it speaks volumes for the grand achievement.

Without wishing to detract any merit from the performances of the utility White Leghorns of Australia, I still contend that under my system of selecting layers any non-sitting breed would, if they were taken up seriously, give almost if not just as good results if in the hands of brainy breeders.

One of the best paying utility plants for egg-production only in Australia is run with Black Minorcas—I mean strictly for utility purposes only and for the sale of eggs to market—yet Minorcas have not been fostered. The pendulum may turn some day, and the kudos go to another breed; but, collectively, the utility White Leghorn has been bred to a uniform standard in egg production that under the crudest modes of poultry culture they are able to retain their proficiency, while we have numerous breeders who are making good livings out of this one breed, and there is plenty of room for more. The breeding here is a matter of selection, in testing by my methods of selecting layers, or single penning all the beauty points of the breed are not taken into consideration; the principal points to consider are vitality, stamina, bone and the fundamental characteristic of the build of bird for egg production, preference to be given to females which lay a decent-sized egg, with a nice body development, over one that laid twenty to forty more eggs in the year, but is small, light-boned and contracted in body.

Providing you have a good sample of hens in uniform quality, the cockerel, if highly pedigreed, may be smaller than you prefer if he is lusty and full of perpetual motion.

Australian and New Zealand Leghorns are finding new homes in all parts of the world, and wherever they have been introduced splendid testimonials have been received on the merits of the birds. In England, India and South Africa the fame of the breed is rapidly spreading, as all buyers have marvelled at the wonderful capabilities of the bird for producing eggs in all climates—heat and snow.

Seven years of line breeding amongst scores of breeders have put White Leghorns well ahead of any breed, until at our present (1913) competition, of which one is held in each State, the issue is not between breeds, but between different pens of White Leghorns. They are all pedigreed birds, bred under the best management, but so much depends on ages, selection and the physiological elements, that the winner must not only have good birds, but the luck to get off the mark from the jump; so the breeders of the winners this year (1913) may through breeding environment and surrounding be amongst the rungs of the ladder the following year. Brown Leghorns have won one competition, and came second in another, but rarely more than one or two pens compete against sixty or seventy pens of White Leghorns, but if Browns were as popular it would be a great contest.

The White Leghorn is a wonderful egg-producer collectively, as they have proved it in several of our competitions, the 200 egg average having been passed several times.

The concentrating of cultured breeding and education devoted to this breed should, if any other breed comes into popular favour, help to bring it rapidly to the front, as the line of demarcation is now acute between sloppy methods and scientific breeding. The principles of correct breeding are now well understood, and hundreds of breeders are so well educated that if they turned their attention to a new breed, it would be a great race for superiority. It would not be a matter of rearing, but the elements, environment, and the physiological moment of starting, showing the great strides that have taken place in breeding, selection of stock and rearing. The introduction of birds that will lay a larger sized egg collectively, whether in Leghorns or any other breeds for commercial pursuits, will open up new ground and bring the talents of unknown breeders into public estimation.

In breeding Brown Leghorns for Show purposes, "study standards" and the fashions of your country, as this breed is so muddled up all over the world that I would have to write at least six articles to suit the different colonies of Australia, America and England.

The type is easier to breed than in Whites, as no foreign blood has ever been introduced in Browns; the other sub-varieties have been blended, but that is not foreign blood.

The extreme double-matings are practised in Victoria, Tasmania, South Australia and Western Australia, viz. light females, dark-hackled males. The females are often seen with gold dust edging on saddle, and in a number of awards it is thought a redeeming feature. The female should be a soft shade of light walnut, fine pencilling all over wings, back and saddle, with a deep-coloured robin breast.

Rusty or foxy colouring in pullets on wings is very hard to eradicate, but it clears away in hens if the mating is correct.

Victoria has a standard of her own in Brown Leghorns. Tasmania is a blending of England and America—English coloured females, American coloured males, with English comb and lobes.

South Australia and Western Australia have a shandy-gaff blending of Victorian, English and American bloods. New South Wales, Queensland and New Zealand all follow the English colourings, and America retains her own ideals. South Africa English.

Study the colour problem and the different characteristics, and the instructions in White Leghorns will help you to make the selection. Best cross, Golden Wyandottes. Colour of eggs, white.

Buffs

Are little bred in Australia. They are smaller than Whites and Brown collectively, otherwise the outline of bird is the same. Best cross, Buff Rock. Colour of eggs, white.

Blacks

Have made great strides, and splendid specimens are now seen free from white in undercolour and tail. They are a semi-mated pen, although some breeders work solely on double-matings. Best cross, Anconas. Colour of eggs, white.

Blue and other Colours.

The Blue, the Cuckoo, the Silver and Golden Duckwing, the Pile, the Red are all sub-varieties. The standards are all in the book, and the matings for type, comb, carriage and leg colour are all similar. It must be understood that all varieties of Leghorns must have yellow legs, and they cannot be bred on limey soil for show purposes.

A poultry farm run with all the varieties of Leghorns would be an interesting sight. Unfortunately, at least in Australia, we rarely see any colours outside of White, Black, Brown and Buff; an odd Pile and Duckwing may be seen once a year at some of our principal shows, but it is only a spasmodic effort. The Leghorns will always be popular, as they are hardy and eat in proportion to their size, and if selected properly, always profitable.

Leghorns are suitable for the intensive system; in open runs the utility birds are like Muscovy Ducks, like to have a peep into other yards, and their depredations once in a garden are extensive. Although the utility female averages only about 4 lbs. in weight, the bird, owing to its active scratch, eats as much or more than an Orpington at 6 lbs. weight, but I have found Wyandottes the smallest eaters of any breed for their size. Colour of eggs, white.

Modern Game.

Once the aristocrat fowl of England, but gradually drifting from the favour of fanciers since the introduction of the utility breeds. From present indications I cannot hold out much hope for a revival, as the craze is now on for short-legged birds in almost any breed. Game are only moderate layers of tinted eggs, and medium table birds. For full description, see "Standards." Best cross, Brown Leghorn. Colour of eggs, tinted.

Game, Old English.

Once the glory of the Midlands of England and the North Country for the exciting pastime of cock-fighting.

How poultry shows would pay if secretaries were allowed to have a few combats on the stage! There would be no wailing about the small attendances.

Old English are a very hardy fowl, of various shapes, colours and idiosyncrasies, that there seems to be no unanimous opinions amongst their various admirers. Some will turn their nose up at "white legs," others have no time for flow of feather, others don't want legs wide apart, and the peculiarities of certain builds, form, corky or gummy legs would fill a volume. Something new is always cropping up in Old English Game, the subject never flags.

They are a splendid fowl on a country farm or close to neighbours, whose cocks are worrying yours, or where vermin or cats are about, as the mothers will always protect their young, with their lives if necessary. They are quick growers and good layers of tinted eggs, and a good strain could easily be built up by selection. As a pastime quietly in the backyard, the cockerels will give you plenty of fun, as there is no law against cock-fighting in your own yard, providing the public are not admitted. A good set-to can always be obtained from cockerels by removing one from the pen and making a few marks on him with a white-wash brush, and not any of his brothers selected will know him in his new garb, and they will soon start operations.

A grand fowl to cross with Leghorns for country districts and farms.

They are great foragers, and the females ideal sitters and

mothers, and extra small eaters. They carry a lot of breast meat of the best flavour, and always strip for the table bigger than they look with feathers on.

For full description, see "Standards."

Best cross, Brown Leghorn. Eggs: table, various. Colour of eggs, slightly tinted.

Minorcas.

One of the best classes of Mediterranean fowls for egg production. A breed neglected by the bulk of utility breeders, for no apparent reason. They can be selected and bred for egg production to rival any other breed in number of eggs, while they have a wonderful advantage in the size of egg laid. Minorca eggs will always realize one penny a dozen more than all other eggs, except Langshans; this is a point utility farmers might note to secure extra profits each week, as on a plant of 600 birds the approximate return for the other penny a dozen would be ten shillings a week extra. One of the most successful utility farms in Victoria is run on Black Minorcas. They have a splendid demand for their eggs, but because they are not fashionable, or even in the shop windows of the press, the public do not recognise their value as a utility bird.

The public pay extra for large fruit, and are always willing to pay extra for large eggs.

The breed is also grand as a show bird. The only drawback is, that after three shows of any duration the combs of the cockerel overreaches its normal height, and it has to be removed for breeding purposes. The bird is really more valuable as a breeder with its comb off than on, but when breeding for utility there is no need, as it is simply over-condition and confinement that cause the comb to expand.

The fertility is generally good, the chicks are hardy and rapid in growth, and their eggs are pure white in colour. In free range or confinement they do well; the only weakness in confinement is a tendency to feather eating, but exercise and judicious feeding will counteract that.

The females with their fluttering combs are handsome, and as their colour is black, they always look clean and attractive in any sort of yard.

The Show Minorca has been wonderfully improved of recent years, the size of lobe and texture is a revelation, while the structure of bird has also improved. Minorcas are not so heavy or as massive in bone as formerly, and this tends to better egg production.

Breeders who intend starting on utility lines would be wise to make full inquiries into the merits of Minorcas. They are honest workers, non-sitters, and rarely troubled with ovarian complications.

Best crosses, Langshans, Black Orpingtons. Colour of eggs, white.

Rose Comb

This breed made a sensation in America some five years back for a record sale of high-class stock at a fabulous price for a breeding trio. I don't care about these records myself of high-class birds, it is too easily worked for notoriety and sensationalism.

Rose Comb Minorcas should make wonderful non-sitting egg producers for Australia, as they will give what is wanted, a large white egg. The Rose Combs of all breeds I have found collectively to be superior to Single Combs in all climates, more especially in cold districts. They have never yet been scientifically bred for egg production solely; if they do have a bit of luck and become fashionable, then White Leghorns will be neglected, as clients and salesmen appreciate size of egg. I can recommend this breed to utility farmers for egg production, and they will never give the same trouble in showing as their relatives the single combs. Best cross, Single Combs. Colour of eggs, white.

Orpingtons.

Black.

The breeding of the Black Orpington collectively for colour is fairly easy compared to other breeds of marked feathering.

For show purposes the beetle green colour is the *sine quâ non;* this, often without type and symmetry, under some judges will give them the coveted win, and on the other hand typical birds that fail badly in colour are often placed over birds brimful of colour. It is a matter of physiological circumstances.

The judging of Black Orpingtons, more particularly in the hen and pullet section, is very erratic. The chief consideration is size and condition; type, colour and quality are not understood when size is benched, unless it is coupled with colour and type. Even then condition in females is imperative, otherwise they are liable to be put down.

Type and condition often run together. It is only when in condition for the show pen that fretful or nervous birds show type, so that the moment condition fails, they are without a card. Orpington females are more or less freaky, as some days when penned they will not show for thirty-six hours or more, while on other days they will look splendid a quarter of an hour after penning, and fall to pieces on the last day of show, and often just after judging. This undoubtedly accounts for the fickle judging in several instances. Males are not so changeable, as they will often run through the season without a defeat.

The chief breeding faults are lack of type, coarse heads, too much comb, too high on legs, overplus of colour, deadness of colour, and other minor deficiencies. For an amateur who has no time to wash fowls or practice any improvements, the Black Orpington is suitable, for they, when in condition, can be ready for

a show in five minutes. The only thing required is a cold wash of their comb, face and wattles, the legs washed and cleaned, and a silk handkerchief rubbed over their feathering.

The foundational points for a specialist in Orpingtons is knowing how to rear chicks, to keep them growing without forcing from shell to maturity, and the soil must be suitable. Too much lime means premature growth, good soil with cool climates is best for colour and size. The early maturing bird is for the utility man, but the gawky, sloppy made slow featherer is often the champion of the yard at the finish, providing he has bone and is short on leg.

If you mate two rich coloured birds together, as required by standard for the show pen, the results are seldom satisfactory, as 80 per cent. or more of the progeny, especially the females, will show a considerable amount of purple colouring, a great objection, while the sickles of the male birds will also be purple, more or less.

A very rich beetle green coloured male, mated to a typical female dead in colour, no sheen of green or purple, but a dead black, will often throw splendid males, or *vice versâ*, or a male bird that has an overplus of colour showing red in hackle, with all his other feathering a rich beetle green, will give you both male and females fit for exhibition, if mated on to a female, almost without sheen on feather. A female showing a lot of purple feathering breeds best with a rather dull coloured male free from purple, but in this case hereditary breeding will have a big influence. Single mating and line breeding must be used if you want to be a champion breeder of Black Orpingtons.

The colour problem is an interesting study, but your rearing, soil, climatic conditions, and unrelated vigorous stock in starting are the principal points, the line breeding comes in after; the vigorous bird line bred will be your mascotte.

Height on leg is a serious problem, as all breeds are easier to breed for length of leg than bone and short shanks, so in mating have both male and female with short shanks, and always use bone meal in rearing Orpington chicks. Short shanks are often a fraud in females, as some strains have a feathery growth that runs down the thighs, and hides the shanks, making the bird look low set, whereas the shanks are often longer than her next door neighbour, but which lacks the excess of feather on thighs, but as the first named receives all the kudos, both from a laying and an exhibition point, you will give her the preference, if your selection is between the two.

The male with a small neat comb of fine texture, but with a firm base well serrated, will transmit this to 80 per cent. of the progeny. Never breed from faulty combed cocks or cockerels, as there is no stronger hereditary point for transmitting it to the progeny in any breed. Give away something else, but always have the comb and head points good, and this, coupled with length of leg, will give the roof and the foundation, as in all breeding points, all

classes of work, and in all building up of new countries, look well after the extreme ends, the middle will look after itself. A male with toe-nails half black or all black will give you black-eyed birds in both sexes, black beaks, but not necessarily black toe-nails, but it is a valuable breeding point if procurable, but not many typical birds are about with black toe-nails; and any specialist who comes across such a specimen should immediately purchase it if possible, as they generally have a good quality comb as well. It is the cluster of quality.

I don't like a cockerel or pullet with their tails too near their heads, as they seldom make good cocks or hens, as there is no room to show type, the back being too short, and they are failures in adult plumage.

These are the principal breeding points of Black Orpingtons, the rest depends on your own abilities, although there is always a bit of luck attached as well in starting, to procure the blending of bloods, as some erratic matings to look at will, by the intermingling and blending of blood, throw wonderful stock, but here again the owner must know how to rear, as nature may give you as a gift, colour, type, and quality, but she never gives you size, that is entirely your own creation, or in other words, regularity, cleanliness, variety of feeding.

Black Orpingtons selected from quick maturing strains are splendid layers of large sized tinted eggs, and they are not so prone to broodiness as several other sitting varieties, and they seem to be able to stand extreme temperatures, as they do well in both hot and cold districts.

Once you have mastered the beetle green colour problem you have a wonderful bird for uniformity in colour, type, and size, and a captivating bird to all your visitors, and a bird that gives more satisfaction to clients than any other breed I know of collectively.

Black Orpingtons, if wanted for size, will be a failure on cold soil, by this I mean soil that has a foot or eighteen inches of soil on top of a four or six inch drift of gravel separating the clay subsoil, more particularly if the situation is exposed. A few can be bred on cold soil if bred very early, if the place is well protected, but soil of this nature in Australia dries up so rapidly in spring that all the nourishment that goes to feed chicks is exhausted, and for all the good the soil is you might as well have the chicks on bare boards. If turned over into a garden or kept moist, then a 50 per cent. improvement is effected, but strange to say, the only real progress made by chicks on this class of soil is when it is wet.

Autumn hatching is the best time for rearing on this class of soil, but often in an extra wet winter the water is bubbling up everywhere, as all the drainage runs down the drift, and as the clay absorbs the moisture so slowly through the drifts, the access of water makes a regular quagmire. Best cross, Blue Orpingtons or Minorcas. Colour of eggs, brown.

Buffs.

A grand breed for cool districts, hardy, extra quick growers, wonderful good mothers and sitters, one of the best fowls to run in conjunction with a non-sitting breed on a farm. For show purposes their exquisite colouring is charming, but to retain it they must be well shaded, the colour of females fading quicker than males once they have started laying, but this is characteristic of all females in marked varieties. Chief faults in breeding: Light eyes, overplus of comb through confinement, length of leg, shafty, mealiness, and lacing of feathering, peppery tails in females, light undercolour, and black or white in tails of males.

The male for breeding purposes should be free from lacing on breast, sound flights and tail. For preference buy a second season bird, as if he is sound you have a valuable stock bird, as cockerels, no matter how good the first season, may be very ordinary specimens as adult birds, and not reliable as breeders, unless you know the strain. Procure him as low set as possible; personally I prefer a little white in sickles as a cock than black, but black in some strains is better, it all depends on the blending of blood, but in mixing ordinary buff coloured paint no black is used, but a mixture of white, red, and yellow. To make sure buy a sound coloured male, and you can try him on both females, the one showing a little black peppering in tails, the other a lacing showing dark on edge of feather. Females rarely show much white in tail feathering, except in undercolour. A very soft coloured female, although she may be a high-class show bird, is not a good breeder as a rule with an exhibition male unless he is deeper in colour.

She requires to be mated with a bird approaching cinnamon in colour, but with single pen matings as I have described you will soon find out the good and bad matings.

Good Buffs for exhibition purposes can be picked out by experienced breeders at three weeks old, as the others show their faults then, but often at four, five, or six months old, cockerels especially, unless handled for their new feathering, often look real wasters.

Buff Orpingtons should always be handled for their last feathering before breeding out. Silver Wyandottes are the same, and you will find, once you have procured a line of blood in Buff Orpingtons that transmits it to the progeny, although they have 100 per cent more faults than Blacks to breed out, the chickens collectively will be more uniform than chickens bred from a pen of high-class Black Orpingtons, as in one size is the mascotte, the other uniform colouring.

Small neat combs, especially in males, should be chosen, as floppy combs in males and females are unsightly, and as they are confined so much, any excess of comb is exaggerated. These are the principal points: Undercolour in females, if it is very light, is a faulty breeding point, but if the flights are sound and she is a hen,

then she may be a good breeder, and it is impossible to buy perfection. Undercolour under neck hackle of males is a common fault, more particularly in adult male birds, and a sound under-coloured bird is a gold mine to a specialist breeder. Best cross, Buff Leghorn, eggs; Indian Game, table. Colour of eggs, brown.

WHITES.

Colour is required in this variety—a pure white satin feathering, and so far we have no typical "stay white" Orpingtons such as we have in White Wyandottes.

The colour could easily be procured by crossing it with the stay White Wyandottes, using the White Wyandotte showing a tendency to pink on shaft or quill of feather underneath the surface.

The male bird would be used on White Wyandotte females, as near Orpington type as possible. Plenty of our White Wyandottes in Australia are little removed from Orpington type; in fact, at our last big show (1913) held here, if the winning White Wyandotte hen had had a single comb and white legs, she could have won in the Orpington class, but the White Wyandottes of England are higher than ours. This cross could be bred out in three seasons, and you would have better coloured birds, and the type would also follow quickly. We have grand type in females, the males are still inclined to look a bit leggy, as in Black Orpingtons. The head points, colour of leg which must be pure white if possible, although male birds are inclined to show pink enamel down the sides, but the quality head points, the white legs, and the colour are the chief essentials when making up the breed. Type is wanted, size is imperative, but these are your burdens. You are the man behind the gun, and it depends on your own efforts; you help Nature, and she will help you. I predict a great future for White Orpingtons, as they are such a docile fowl, splendid layers of highly-tinted eggs, grand table birds, quality of flesh, good, hardy, vigorous; easily kept in by four feet netting, seldom broody compared to other sitting breeds, and an ideal fowl for the farmer, and, above all, no double mating is required.

Much has been written on the bleaching of White Orpington male birds for show purposes. I could certainly guarantee to bring any discoloured male pure dead white in feathering by bleaching, but, unfortunately, the bird would die.

There may be a method of removing the over colour on White Orpingtons, but I don't know the recipe. It is a peculiarity that the male birds in the adult plumage are a purer colour than cockerels, and the neck hackle of hens does not discolour so quickly. The introduction of the White Wyandotte blood is my secret, and a legitimate way for obtaining purity of colour.

The White Orpington in England has improved in colour

considerably. The display at Haywards Heath Show was an object lesson for improvement in both colour and type. (It must be understood that all of the copy for this book was placed into the printer's hands immediately after I landed, with the exception of the supplementary copy for England and additions of this description.)

Type, colour, and size is splendid, but there is still room for the Stay White Orpingtons, especially in cockerels, but I am pleased to know breeders are concentrating their energies on this particular point. I have seen in one yard unmistakable evidence of the introduction of White Wyandotte blood. The colour of birds running out is almost perfect, and the blending of this particular strain will improve all the others, and the Stay White Orpington and also the Faverolles is within reach, and then beauty and utility will come into their own. Single mating, single colour, double profits, are the fowls for the masses. Best cross, White Wyandotte. Colour of eggs, highly tinted.

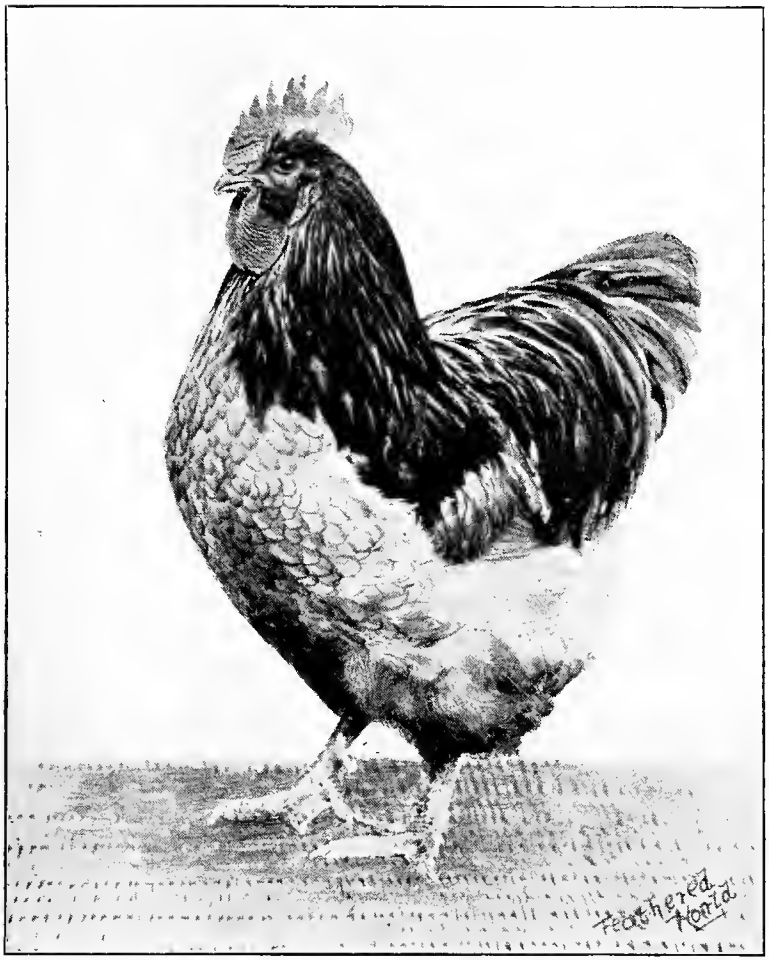
Other Colours.

The other off colours in Orpingtons are Jubilee, Spangled, Cuckoo, Red, and Blue Orpingtons. Of these sub varieties I fancy the Red Orpingtons, as they would stand the climatic conditions well, and are a self-coloured breed. The Blues, if of a deep colour, should be a popular favourite, but the pigeon blue would fade in a week in our Australian sun. Blue is a quick fading colour, under the best conditions, especially if it is light in colour, but navy blue colouring stands, and if the Blue Orpingtons are navy in colour, then they should become a popular utility fowl for fanciers and farmers. I cannot give any detailed points on the making of colour in Blues, but the darker males, mated with lighter-coloured females would follow other breeding laws for colour, as the male bird is responsible for seventy per cent. of the colouring.

The Blue Orpington fanciers have decided on a colour similar to Andalusians, and they should become popular, as its a colour that will stand climatic conditions in any climate. The breeders are to be congratulated for a sensible standard, and if only the standards of the Blue Leghorns and Wyandottes had been initiated at their début, they would have had a wonderful run in popularity.

The trouble in store for Red Orpington breeders is the Red Sussex, as, if they became popular, the parasites of the poultry world would bring in all sorts of Red Sussex, or any red coloured fowl with white legs, as pure bred Red Orpingtons, but Red Orpingtons should suit Australian climatic conditions, as the Buffs fade rapidly when exposed to our atmosphere out in the open.

The Jubilee, Spangled and Cuckoo will never become popular, there are none left in Australia to-day. The self-coloured breeds are popular, and they are all single-mated breeds or worked on semi-single mating. Colour of eggs, brown.



Photo] ["*Feathered World*" *Bureau.*

BLUE ORPINGTON COCK.

1st, Special and Challenge Cup, Crystal Palace, 1911 and 1912. Bred and exhibited by Capt. Max de Bathe, Hartley Court, Reading.

The blue is quite a recent addition to the Orpington family; and since there is somewhat of a craze for this colour at present it is likely to become a popular fowl. This variety of the old Kentish breed is, in reality, a laced blue; that is, it follows the Andalusian in colour and markings. At the recent Palace Show Captain de Bathe staged a remarkably good team of blues, and in

addition to the wins already recorded on previous page his birds secured 3rd prize in cockerels, and 1st, 2nd and 3rd in pullets, also winning the challenge cup and special for her class, and the International Challenge Trophy for the best Orpington other than buff. The value of the latter win can be gauged when we remind our readers that competing for this trophy were 99 entries in the Black Orpington Club Show, 210 Whites, 30 Jubilees, and 33 Spangled in the Variety Orpington Club Show, 52 entries in the Cuckoo and Blue Orpington Club Show, and 11 Reds, a total of 435. The bird, however, was an especially good specimen, of true Orpington club type, almost as big as the best black, of sound level colour, and as fit as a fowl could be exhibited. It is worth mention, too, that Captain de Bathe's strain of blues was originated in his establishment at Hartley Court, Reading, and that it was "made" solely from Orpingtons.

Plymouth Rocks.

This is America's most popular utility fowl, whether in White, Buff, or the Barred variety.

This breed had a successful run in Australia twenty years ago; the Langshan, Wyandotte and Orpington followed quickly, and the Rocks could not withstand the onslaught, and they gave way to the Wyandotte and Orpington. The early type of Rock introduced were on the heavy side, coarse in bone, and the barring on feathers was fairly wide in comparison to present day Rocks.

The Rocks also had a couple of hereditary taints that lost it many admirers. Cockerels at from four to five months old developed "leg weakness," and matured cockerels and cocks never developed their sickle feathers, and got what is commonly known as "rotten feathering." They were organic complaints, and, coupled with this, the hens developed fat internally, certainly a local complaint caused by over feeding and want of exercise, but poultry keepers in those days did not practise the scratching system as we do at present. A spasmodic system of feeding in litter was carried on by a few enthusiasts, but collectively there was no proper organised system. To-day we have the Modern Barred Rock of extra fine barring, a more active bird, a bit lighter in bone and structure.

Leg weakness is caused by the class of soil on which Rock chicks are reared. Soil devoid of lime has a bigger tendency to develop it. Bad tail is caused by a parasite through overheating of the blood, as Rocks are a warm blooded fowl, and this disease is prevalent in warmer districts. Some strains of Rocks are free from this organic trouble, it certainly will not affect the utility breeder, but breeders for show purposes are often worried by the lack of symmetry in finish of tail feathering.

They lay a lovely tinted egg of good size, the chicks are very hardy and grow rapidly, and as a fowl for uniform appearance,

collectively, no other fowl can approach them of the marked variety. Provide plenty of scratching litter for feeding females, especially those going through the moult, and stop all feeding of maize. Give chiefly oats, with a little wheat and cracked maize thrown in on extra cold nights.

The Buff and White variety are extra good utility birds, especially those of American bloods, the English White Rock is too heavy and massive for utility purposes. The English Buffs are not so heavy, but they are a better colour of feather than the American's. The American Barred Rock is finer in barring than the English, and a better bird for utility purposes in Australian climates, but a blending of the two would be an ideal mating.

Barred Rocks are mated differently to the average breed for show production.

The tendency in all birds is to get lighter, but the females in Rocks carry more colour than the males, a most unusual occurrence. So for mating procure a standard-coloured male and mate him to two pullets a good bit darker in colour, and these will throw the colour required for cockerel showing. In the same pen have two females a bit lighter than standard colour and the pullets bred from these will give you the standard colour.

This is called semi-mating, in fact, single mating. The double mating is worked on similar lines, with this difference, that the pullet-breeding male is about four shades lighter than the standard-coloured females.

It must be understood that, in my opinion, I give preference to a bit of colour in both male and female, to be carried in distinct barring as is possible to secure, especially around thighs and fluff, but, as I previously stated, this breed is so tricky in its methods that any mating possessing good blood lines may upset all your theory. The width of barring is narrow, but there is a difference between the width of the one blue from the other, but the principal thing is to secure distinctness or sharpness in markings, not width of colours. Best cross, various. Colour of eggs, brown.

Sussex.

Have three varieties, Red, White, and Speckled—all utility birds. Reds throw rather a mixed colour of feathering, with a big tendency to mealiness of light feathering, which becomes lighter in colour as they get older. They are quick growers, and used a lot for chicken fattening in England. White breed more uniform, having a fair resemblance to Columbian Wyandottes in feathering; all Sussex have white legs.

Speckled Sussex are similar to Jubilee Opingtons, in fact it is hard to say where the Orpington finishes and the Sussex begins. Birds have been shown and winning as Sussex one week, and have appeared as Jubilee Orpingtons the next; I expect the bird was

fickle, and liked new friends and surroundings. The feathering is tri-coloured—black, base brown, then white tipped—the white as usually tries to take possession of the whole feather, but the smaller the tipping the better, although it generally expands as the bird grows older.

Follow the same selection as other breeds for ground colour, give preference to dark birds over washy coloured specimens in the breeding pen. Best cross, eggs, White Leghorn; table, no need to cross. Colour of eggs, tinted.

Wyandottes.

One of the most popular breeds of Australia and New Zealand for utility and show purposes, hardy, docile, quick growers, easy to keep in confinement, layers of tinted eggs, and once you have been a Wyandotte fancier it never dies, more particularly of the Silver-laced variety. Our oldest and staunchest breeders to-day in Australia are still in the fancy, breeding Wyandottes, and their love for this breed is stronger than ever.

Wyandottes have a splendid reputation in cold climates as egg layers, hardy, docile, quick growers, great foragers, doing well in confinement or on free range; their eggs are tinted and of an exquisite flavour.

Single-mated in Whites, semi-mated in Blacks, Blues, Columbian, and Golds, and double-mated in Silver Laced, Pencilled and Partridge. Taking them in the order of popularity the kudos falls on the mantle of Whites.

Mating of Whites.

The type of Whites in England and Australia is entirely different, while that of America varies a bit also to Australia. England's Whites are leggy and by no stretch of imagination do they resemble a Brahma in outline. Their colour, head points and leg colour are identical, but the length of leg is yet too high and is not according to their own standard. The principal foundation in breeding whites is purity of colour, known as the "stay white" strain, and that is a clean satin feathering on the surface, with the shaft of feather showing pink to a certain extent in under colour, which is a sure sign of purity in colour. As the types vary so much you will, if you want to win, follow the old maxim: "If you are living in Rome, do as the Romans do." In England breed for colour, bone, and size, type is not understood as we know it in Australia, while in Australia our birds that we call typical are low set, full-fronted, resembling a Brahma on back, and cobby finish of tail.

Condition in show pen and type are very important. America's whites follow on similar conditions to Australian with this difference, they are generally tighter in feather. The other breeding

points you will find in Standards. Best cross, White Orpingtons. Colour of all Wyandotte eggs, brown tinted.

England's White Wyandottes have improved in type wonderfully, especially in contour of back, with half inch more off the legs, the Australian and English ideals could be intermingled successfully. I should advise prospective breeders in England to secure low-legged specimens, as it is the easiest thing in the world to breed length of leg, but one of the hardest to eradicate once you have it in your strain. Procure low set flocky birds, with the male bird comb as near ideal as possible. A good comb must be used on the breeding male.

Cockerel Breeding in Silvers.

The mating here is a typical show cockerel, with grand wing bars and top colour of silvery white, with the neck and saddle hackle nicely striped. The breast should be evenly and soundly laced from throat to hocks, but I pay more importance to wing bars and top colour in a breeding bird. The lacing on breast can be a bit broken at bottom of breast, or slightly double laced, or the lacing can start a little low down the throat, as this deficiency can be rectified in the hens. Secure a small neat combed cock, with a nice spike finishing down the curve of neck, and a broad low set bird. The hens to mate with him must be cockerel bred, it is really hard to describe a cockerel bred female, as a shandygaff, mongrelised specimen of a pullet breeder may answer the description. The females are nothing to look at, often mooned only on breast, peppery on cushion, but generally they have good neck hackles. It is a matter of strain, and beginners will have to depend on breeders; even an experienced breeder has no hope of selecting a cockerel breeding females if they were mixed up with nondescripts, or the result of matings from a pullet and cockerel breeding strains.

By using the individual mating, and your male bird is good on top but fails in colour underneath, there are some strains of pullet bred females that could be introduced to obtain breast lacing; it may take two seasons' matings to introduce the colour without effecting top colour of cockerels, but it is a matter of selection, if you are weak in one point, try and rectify it on the other, but if you do introduce pullet blood to your cockerel pen, then you will have to breed the progeny back, and follow line breeding.

Silver cockerel breeding would be a grand combination for a utility farmer to operate with, as the females are never shown, and the male birds will receive more benefit going to three shows a year than stopping home, as they do not fret, only you want three or four show birds as relays, if showing at a number of shows. You would obtain a splendid price for show cockerels, which would pay for a large number of eggs, and you would have your ideals gratified.

The breeding of Silver Wyandottes for show purposes is not easy, as there are such a number of points to breed for, but the fascination of the bird is charming, and it is wonderful the magnetism that plays on your emotions after a year's breeding operations. Wyandottes never work up your hysterical feelings, and guide your false hopes, like a number of other breeds of fowls, but the gradual unwrapping of the beautiful feathering of a champion keeps your emotions simmering all the time; an undercurrent of gratification and satisfaction is experienced, and once you have obtained a good Silver Cockerel, it is not a phantom, but a champion all the year if you keep him healthy.

Pullet Breeding.

Male bird must be pullet bred, generally with more or less a smoky back, triple row of wing bars, a sound laced and coloured breast. I have seen them light on back with rich striping of hackles, but not many. They are not a taking bird to look at, nor would they be so useful a breed to the utility poultry farmer. The feathers intermingling with tail coverts are often laced like a pullet, and under the wings should be brimful of lacing. Comb neat, close to head, but there is not the importance attached to the comb on a pullet breeding male bird, as there is on the show cockerel. A mingling of white in tail feathering is not objectionable, it is not a foreign feather.

The hens or pullets should be clean laced, hens moulted clean in lacing preferred, good exhibition specimens are used with this male—only high class exhibition specimens are used, sound in colour, as free from black in neck hackle as possible, and from double lacing.

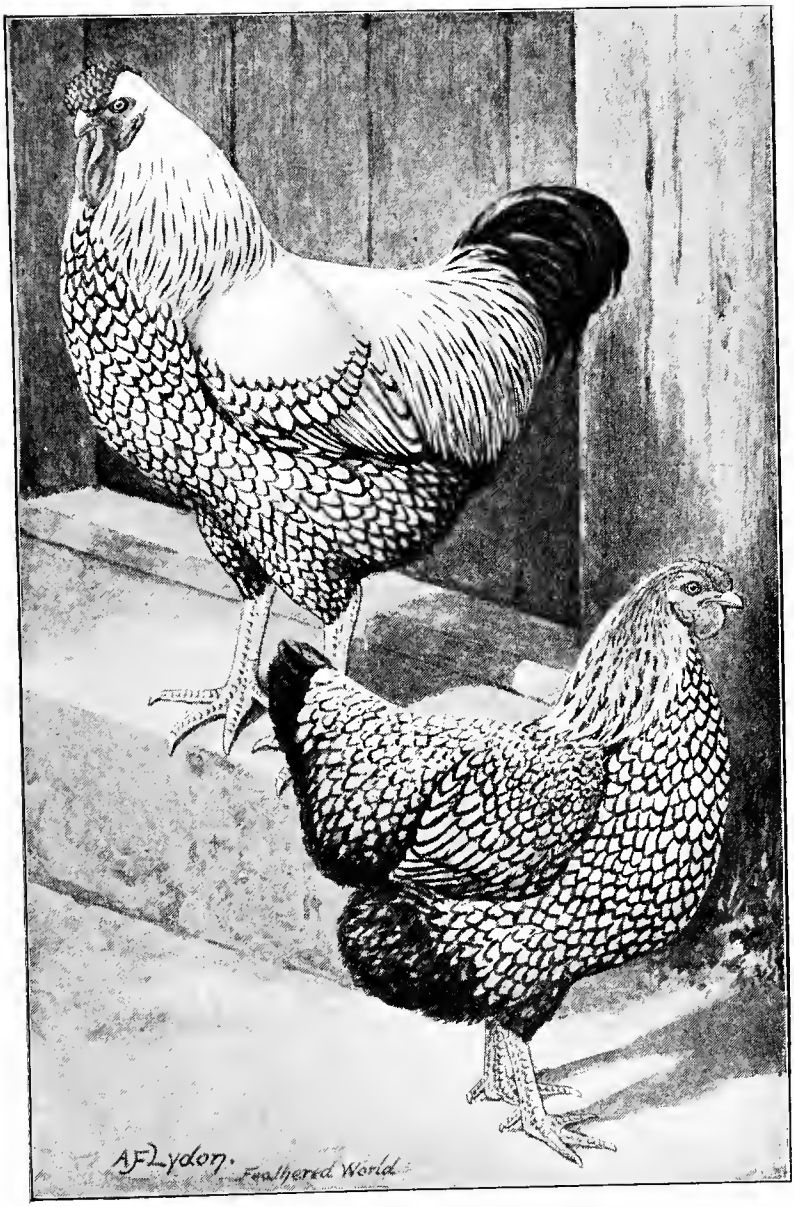
In preparing Exhibition Silver Wyandottes and, in fact, all birds of a similar description, they must be washed a week before a show, as it takes the birds four or five days to prune their feathers properly, and regain their proper sheen. Best cross, other breeds of Wyandottes or Silver Spangled Hamburghs.

Golds.

These can be bred on single matings for cockerels or pullets, or the one male exhibition bird can be bred with exhibition females and selected cockerel breeding females, which are lighter in ground colour than exhibition females; or they can be double mated, but I am not an advocate of double mating, if it can be avoided.

I have bred Golden Wyandottes for fifteen years, and have won the highest laurels in Australia each year, both in cockerels and pullets, and have only used single matings. There is hardly any necessity for it, except in England, but even there the semi-mated pen would give you splendid results.

The ground colour of females and breast of male should be



COCKEREL BREEDERS (SILVER WYANDOTTES).

(See Cockerel Breeding on page 179.)

rich and deep in colour, free from bleaching or shaftiness, and the male birds want good striping in their hackles, as that is often a weak point in male birds, and they lack richness and lustre without striping. They are far easier to breed for show than Silvers, as the lacing is not so difficult to obtain. The wing bars are far ahead collectively, and that is always a good sign, as rarely a bird possessing good wing bars is not well laced, regular in spacing; the rounder and broader the feather the better in either variety, Gold or Silver.

A rich-coloured Wyandotte generally carries good undercolour and fluff, and good sound breeding birds, as a rule, can be picked out by the colour of fluff in females, and hock lacing for male breeding.

There is not much difference in the laying qualities of Golds or Silvers; Whites easily outclass the others in England. Not much difference in Australia.

Blues.

Under the first standards introduced they were supposed to be bred "True Blue," which is in feathering a—Pigeon blue,—too light for climatic conditions, where such a broad surface is exposed of soft featherings, its different on a pigeon which is hard and close feathered, so until the standard allows dark blue, of a similar colour to Andalusians, they will not become popular. Lacing is not allowed in the females.

The chief fault is colour of legs in females, and light and washy undercolour, discoloured hackles.

Other Colours.

Buff, Red, Cuckoo Wyandottes are staged, but only on rare occasions.

Columbian.

Resembling the light Brahma in colour and stripings, except for the leg feathering and the pea comb, they are exactly alike. Columbians are very hardy and they lay an extra large egg. In mating it is very hard to secure correct colour in males, and to obtain rich striping, a male with good white top and dark undercolour on back with a good stripe would be invaluable to a Columbian breeder.

The females are more easily bred, and they breed very uniform in type and colour, and are a beautiful fowl when in numbers running on a farm.

Columbian Wyandottes are well ahead of any other Wyandotte for size of egg, and they are wonderful quick in feathering. There is a big prospect of a grand future before this breed, as collectively or individually they are a charming fowl, and if the

extra early maturing cockerels were selected, and mated up for egg production, they would equal the white in number of eggs, and outclass them in size.

I have never seen so much admiration shown to fowls by ladies, than when a full breeding pen was shown at Melbourne Show, 1911, of this breed.

Partridge and Silver Pencilled Wyandottes.

In the first place, Partridge Wyandottes are exact representations of Partridge Cochins in feathers, and Silver Pencilled are the same in feathers as Dark Brahmas.

For scientific breeding you have to use two pens—cockerel and pullet breeding.

First, I will describe what is wanted in an exhibition male. We will begin at his comb. It must be true Wyandotte in shape, that is low, firm set with spike following the bend of the neck, if full of fine work so much the better, his skull wants to be broad, his beak strong, shading into as near a yellow colour, his eyes should be bright bay, with the pupil well developed. A bird with a bad eye looks anything but well. Now as to his legs: they should be yellow, not black down the front and red up the sides as many are, his toes should be straight and well spread, in fact giving him something to stand on. In type he should be blocking, not narrow or gamey. Next comes his colour. We will begin by saying from the throat right round his breast, between his thighs right up to and including his tail should be a rich glossy black, some show a ticking on each feather. These, if cockerel bred, are no use whatever either to show or to breed from. The head should be rich orange, the hackle should be orange or golden red, having a black stripe down the centre of each feather, not running through the feather, or it will give what is called a smutty hackle. The saddle hackle should also have the black stripe as in neck hackle, and compare in colour also. His back should be a rich dark red, as solid and lustrous as possible. The wing bar a rich black free from ticking. The flights free from white.

The colours in Silver Pencilled are the same in the inner markings of feathers, but the outside ground is pure silver instead of gold. Any of our old fanciers in Dark Brahmas would know the feather.

The Show Hen

should also possess the same class of head as the male, also the same colour of legs and same in type, whilst the hackle should be golden yellow with the black stripe, whilst all over her body we should have a mellow brown ground colour, each feather being distinctly pencilled with black, or as some writers put it "pencilled with a darker shade."

Now I will try to explain what puzzles many, viz. what is meant by cockerel and pullet breeding pens. The answer is this, you must have two distinct matings to produce exhibition cockerels and exhibition pullets.

How to Breed Cockerels.

To breed cockerels you must have a cockerel heading your pen as near like what I have described as possible, although let me here say a perfect bird has not yet been bred. To him you must mate hens or pullets that are cockerel bred. They will possess none or very little pencilling—less the better. They will simply be large framed birds with dark brown body colour, but they should have a well striped hackle, good head and eyes. From such a mating you should breed exhibition cockerels, and the pullets so bred in turn will breed cockerels again. Breeders cannot be too careful to know that the females of the cockerel pen are really cockerel bred, as now and again a pullet may be produced from a pullet mating which looks like a cockerel breeder, but she will only breed ticked breasted cockerel and upset the whole mating.

To Breed Pullets.

A mating to produce exhibition pullets should consist of hens or pullets as near the show standard as possible, and to them should be mated a pullet bred cockerel. Now a pullet bred cockerel should be the son of a really good hen—a winner if you can get one that you know is honest. In colour he is of no use for the show pen, as he will be ticked on breast, and partly pencilled on his thighs and fluff. Here is where many make the mistake, they see a bird that looks pullet bred, but how he has been bred they know not, yet they use him and he spoils the whole mating. A cockerel that has a pullet breeding pedigree behind him is really a valuable bird, as he will improve the worst of stock, and if mated to good females he will produce females worthy of any yard.

The cockerels, of course, from above mating, are in turn pullet breeders.

Yokohamas.

This breed is one of the purely ornamental fowls, and none of the breeders make any claims for it as a utility fowl.

They can produce eggs in the season, and are better than non-descripts. They lay a rather small egg, but like Bantams have a good sized yoke.

To anyone who wants something in the bird line, that will always attract attention, this breed is to be recommended.

The tails and length of feather are enormous, but they do not

attain full length until the birds are three years old. There are three varieties, Duckwing, White and Black Reds.

Campines.

This breed had a mild boom in England about ten years ago, but it was premature; then, after lying dormant, they gradually forged ahead again, and are now extensively bred, chiefly for the American clients.

Individually, there is nothing much to admire in the breed, but collectively they are captivating, and an acquisition in any yard; the light neck hackle, contrasting with the black and white barring, giving a splendid finish to the breed. They are to a certain extent "wire dodgers," and will never be popular with gardeners. They are, I believe, splendid layers of a good sized white egg, and are very juicy and plump on handling.

The matings of cockerels and pullets to produce the standard markings, give plenty of scope for brains and reasoning, but the principal thing is scientific breeding, and then you will find out whether your male require to be darker to produce males or lighter for females, or whether the lighter male will breed dark females. The blending of the blood will be your principal guide after you see the offspring. The breed is a long way inferior to the average Leghorn in head points. The comb and lobe are a long way from ideal, and it will take years of careful breeding and study to combine this with the proper markings. As a breed to rival the White Leghorn as a layer, they will have an uphill fight, as the feather properties will rapidly degenerate in a marked breed if worked for utility exclusively, unless in skilled hands.

Rhode Island Reds.

This breed was launched into England at the physiological moment, viz. just when a few breeds were locked up and no breeder had a hope of coming to the front.

The Rhode Island Red came in with a wonderful flourish of trumpets, and, to make it a double success, the lady fanciers made a target of it, and anything the ladies take in hand seriously is a certain success.

It was a remarkable coincidence, that just as England was rushing frantically after Reds, America reciprocated by chasing one another after White Orpingtons from England, and I think England had the best of the bargain as far as the interchange of money was concerned. Which is the best breed is a matter of sentiment. Both are good, but the one outclasses the other in uniform colour, although both are solid coloured breeds, but the

colour of "Red" is much harder to breed. As far as utility goes it is a matter of strain, and there is little difference in size of eggs.

There are two varieties, Single and Rose Comb, I certainly prefer the latter, but both can be bred from the one pen by working a Rose Comb cockerel with Single Comb females or *vice versa*. The colour of females fades rapidly as soon as they begin to lay. The males are much better. The standard calls for a dark tail, ticked hackle in females and clean hackle in males, with a good sound red undercolour, not black or smutty. It is preferable to use a real good standard male and mate him to rich females for producing pullets, and there also should be one or two lighter but with even colour on top and breast for producing cockerels. So far the breed is classed as a single mating breed, and it will have to be kept so, as the minute the fanciers insist on double mating then away will go its popularity. I should say that better success will be met in the colours by double mating, but the semi-mating should answer the same purpose, providing your male is one of the right blood. Colour of eggs, tinted. Best cross for eggs, Buff Leghorn, and for table purposes use Indian Game.

Bantams.

This wonderful little miniature fowl is remarkable for its characteristics, its perky nature, its grotesque mannerisms, and its constitutional vigour. In nearly all varieties of fowls we have Bantams to correspond, and they are the exact counterpart of the originals. Bantams would not come under the category of utility birds, nevertheless a dozen Bantams could be kept in a small yard that would hardly keep three fowls, and look splendid.

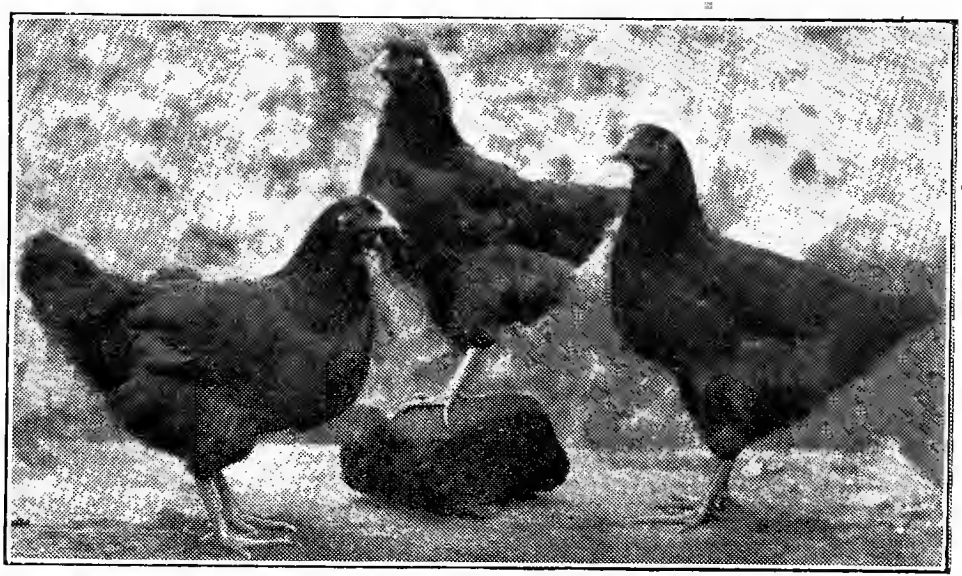
Bantams lay a large egg compared with their size, and the yolk is very little smaller than the yolk in a Leghorn egg; the white is certainly less, but the size of yolk is a revelation. Bantams are very attractive if the breeds are kept together, and you are always sure of captivating the interest of friends, while the children simply rave over them.

The breeding of Bantams is just as easy as fowls, providing you are not bothered with stray cats or overrun with rats.

To breeders of fancy fowls the cultivation, breeding and rearing of Bantams is a splendid tonic from business worries. They are always gay and full of ginger, the cocks ever ready to usurp their egotism and dignity, while the different struts and peculiar action of some breeds amount almost to buffoonery.

Bantam breeding in Australia so far has made little progress, the climatic conditions tend to outdoor sports and pastimes, but in England the climatic conditions tend to a hobby, and Bantams are instructive, amusing and profitable.

It would have been unpardonable if I had omitted to mention their grandeur of deportment, and their toney mannerism, as there



RHODE ISLAND RED PULLETS.

The property of Mrs. Cooper, Culland Hall, Brailsford, Derby. (See advertisement.)

is nothing common in Bantam life. They are swagger more or less and assume the mannerism of aristocrats, and their dandyism is ever prevalent from the first thing in the morning till last thing at night.

One of the finest presents to a boy or girl for a birthday is a trio of Bantams, if they have any taste towards bird life. Encourage children to have a hobby, as it is the foundation of life. Without some sort of hobby or interest in God's creatures, children in after years lead a desultory life. They wander and chase imaginary phantoms of fleeting pleasure, trying to satisfy the craving and lusts of different forms of chronic organism.

There is a charm about bird life that soothes and satisfy these cravings of nature. It is your own handiwork and amusement; that provided by others is only a temporary vision, is simply a live dream. But if your hobby cultivates taste, cleanliness, punctuality, and love of God's creatures as a child, it is never forgotten in after life, as we learn far more quickly when young the foundation of character. Bantams will build up in a child all these characteristics, and you will feel pleasure and gratification when you see the fruits of your forethought.

The manner of looking after Bantams is similar to fowls, except that you could build an attractive house of unique design, surrounded by a yard of lawn and gravel, with a border of flowers, protected by wire netting, as a final embellishment.

The principal Bantams held in public form are (1) Silver and Golden Sebrights, which are a marvellous creation of feathering, good layers and hardy; (2) Black and White Rose Combs, dainty bits of aristocrats, extra good layers and hardy; (3) White, Buff and Black Pekins. Old-fashioned notions, prude and whimsical; (4) Japanese, White and Black-tailed, grotesque and picturesque; (5) Frizzled Bantams, feathers turned outwards; and Hamburghs, Wyandotte, Yokohama; all varieties of Game, excellent layers, and living images of the adult birds both in type and character; Minorcas, Scotch Greys, and nearly all varieties of fowl. The only breeds obtainable in Australia are Game, Black Rose Combs, Silver Sebrights, Pekins and Japanese; but in England any variety can be procured.

DUCKS.

Pekins and Aylesburys.

The Pekin duck is a good market bird, rapid grower, and a very good layer, if not bred exclusively from mammoth specimens.

For show purposes they require to be large, but overlarge birds are often weak in fertility. For utility purposes, the medium-

sized bird is more dependable. They are very easy to rear once they are hatched, and as a quick return on a poultry ranch a profitable bird; the part that runs away with the profits is the carrying over of the breeding bird from the end of one season to the beginning of the other.

Pekin ducks in Australia bought as ducklings at twelve shillings a dozen are always a profitable investment, as they realize from three to four shillings each at eleven weeks old, which gives a profit of one shilling a bird, or a return of from £25 in three months if operating with 500 ducklings.

There is not much profit in selling ducklings at twelve shillings a dozen if the upkeep of ducks, plant, oil, and unfertility are allowed for, and I often wonder how it is done. However, everyone should know their own business, but I would rather be a buyer than a seller of ducklings at one shilling each, as they are easily reared if the parent stock is good.

If Pekins are crossed with Aylesburys they give a more vigorous bird, a better carrier of flesh, and generally better fertility in breeding, and they realize just as much for market purposes; often more.

The mammoth Aylesburys can be worked on similar lines as the Pekins, whether kept pure or crossed with Pekins.

Show stock breeding requires a bit more attention, as the ducklings require a better assortment of feed, and as much of it as they will eat clean each meal. They have to be shaded and fed on plenty of chopped-up green feed, rape and green maize preferred, to give looseness of feather in Pekins, and that lovely tint of canary colouring. Outside weather conditions bleaches the yellow white in ducks, in fowls it is the reverse, the weather conditions turns white fowls yellow, such are the mysteries of Nature.

Aylesburys are the reverse, but not to the same extent as Pekins. It affects the colour of bill, which should be pinky; in Pekins it is a deep orange. The bill is as short as possible in Pekins, and the reverse in Aylesburys. Pekins have an upright carriage, Aylesburys horizontal with plenty of keel, although it often contracts when not in condition. Pekins should only have as much keel as they can carry without affecting their correct carriage. As young birds there is little trouble with keel, but it often develops as they mature; too much keel is unsightly to a breeder. Attention should also be paid to the upward turn of paunch or tail in Pekins, the underpart of tail should turn completely round and point upward, not flat out like a Runner. Colour in both Pekins and Aylesburys is a *sine quâ non*, viz. purity of white in Aylesburys, and the canary colour in Pekins.

Houses with concrete or brick floors are used for enclosing show specimens; they are bedded down on clean straw. Birds should have a bath at least once a day. Young Pekins can be housed at their last feathering for show.

Rouens.

This is an attractive waterfowl and always admired.

This is a bird of ample proportions, splendid for table, and a fair layer considering the size of bird.

For show purposes it takes a bit more selection, as keen breeders use double-mating pens to secure the best results in markings. The detail points would take up too much space in this book, but soundness of colour in both sexes is the foundation. The feathers on duck are pencilled, but the colours are never at the best till the second season.

Rouens really improve with age and are very hardy, good fertilizers, and the ducklings rear quickly. As a waterfowl for effect they are ideal, and they are smaller eaters than Pekins or Aylesburys.

Cayugas

Are a duck of beetle-green feathering, extra handsome in the sunlight, and a useful duck as well as ornamental. Medium in size, fair layers, and a useful utility duck.

Blue Orpingtons.

A large sized duck, different in carriage to Rouens, in fact the type is a cross between Rouens and Pekins. Good utility duck but not a popular favourite, not being known in Australia up-to-date.

Khaki Campbell and Coaley-Fawn Ducks.

A species of duck that look like a cross between Indian Runner and Buff Orpington, the latter in colouring and the former in type but not so upright. A good laying duck. No specimens have so far appeared in Australia in the show pen.

Muscovies.

This duck has become very popular in Australia, as it is a splendid utility duck and a wonderful bird for carrying flesh; they always top the market in price when young.

They have grand fertility, and as they make no noise, are largely used in neighbourhoods where quiet is essential.

They are possessed of great strength in wings, and the inexperienced who catches it by the neck, which is the correct method of catching other ducks, will receive a stunning blow or blows.

They can fly easily, and it is nothing to see them sailing over a house in the early morning. They make little paddle or mess in

the water, and have splendid nests of remarkable build, true in circle and lined in a beautiful manner. Their appearance is not attractive, in fact enough to frighten timid people; and the weight of drakes to the ducks an eye-opener, as the former average twelve to fourteen pounds the latter from six to seven pounds.

They require to be marketed when young, as after nine months old the flesh develops a musk flavour. There are three varieties, Black, White and Blue; the latter are the best for market purposes.

Buff Orpingtons.

This duck came into public favour after winning the first laying competition for ducks in Australia, 1904, and winning second in 1905, but since then the Runners have out-classed all other competitors, as in the 1909 competition they finished in the first ten places.

Buff Orpingtons finished last in the 1912 competition. Such are the vagaries of fortune.

It must be admitted that Buff Orpingtons have not the opportunity now to down the Runners, as so few people breed them in Australia. In my last book I predicted it was only a fluke of the Buff Orpingtons showing the superiority over the Runners, and it came out as I prophesied. All the same, if the interest in the Buff Orpington could have been maintained, they would still make the Runners put their best foot foremost. The Buff Orpington is a splendid commercial duck, good for table purposes or as a layer. The downfall of the breed in Australia can be traced to the want of new blood, or the introduction of blood that would have blended with them. Their record for six ducks was 1,326, the Runners 1,448; but their last record does not reach four figures, whereas Runners are always hovering round the same number.

It must be remembered that climatic conditions affect ducks, as in extra moist years they lay better.

The colour of Buff ducks is not suitable for the hot climates of Australia, as they fade rapidly, but still any species of duck wanted for the show pens has to be more or less shaded, with the exception of Muscovies.

The correct colour in Buffs is hard to obtain, and in drakes almost impossible, as the Australian standard for a Buff drake is that the head should be as near body colour as possible, but in England they allow the head to be darker, which is easier to obtain. The carriage is between Aylesbury and Runner, with tails finishing off similar to Runner, straight out. The fertility is generally good, and they lay a large egg, sometimes coloured.

The Buff duck is a valuable one, and with a number of keen breeders and enthusiasts fostering it, the public will be able to rely on a grand commercial duck for all-round purposes.

The Indian Runner.

The most profitable bird on earth if the right strain is procured. They hold the world's record for one and three years' laying as follows:—1,680 for six ducks in Western Australia and 3,183 for three years' laying in New South Wales. The latter record could easily be beaten as the locality is suited for fowls, but not for ducks; the record is one that could easily be obtained from a flock average in a suitable situation.

The Indian Runner is always a winter layer in Australia, as they moult in summer and are ready to pop off the mark in the middle of autumn. It is astounding to me why breeders will rush the expense and detail work of utility poultry farming when they have better material to work on. No houses, no cleaning, practically no disease—a great combination for success.

Every utility poultry farmer, every orchardist, and every dairyman should keep 500 head of Indian Runners. The greatest trouble in connection with Runners is gathering their eggs and growing green feed. They like foraging, and a place that has a running stream, with plenty of scrub, is ideal for their welfare, with a moist climate.

It is best to keep them in flocks of 50 to 100 on an orchard or farm, and 3 feet of wire netting will keep them within bounds, or movable hurdles are preferable. In the breeding pens one drake is sufficient for four or five ducks.

Runners are nervous and fretful, so once they are used to a locality do not shift them, otherwise they will stop laying and tumble into moult.

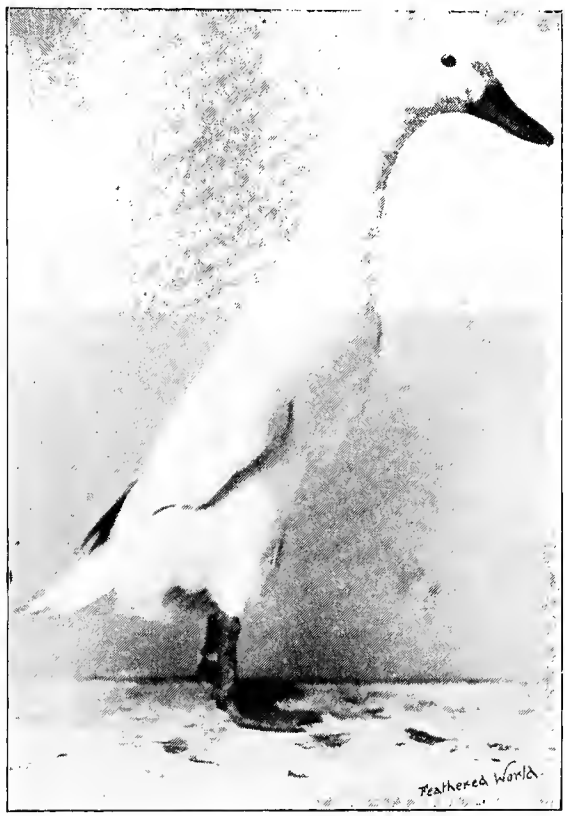
The selection of Runners and other ducks as layers can be done on the same system as I have laid down for fowls. Ducks are seldom kept as a hobby, generally only for table requirements or utility purposes.

Ducks require to be fed on plenty of chopped-up green feed, mixed with pollard or sharps, a little meat or meat meal three times a week, and water vessels deep enough in which to immerse their heads over their eyes. A swimming bath is an advantage, but it can be done without. For limited means in egg culture the Indian Runner, whether one or two years old, is the most profitable, and they show a profit up to six years old.

It is better to hatch Runner ducklings in autumn and early winter than in late spring or early summer. The latter are never any good, and it is only wasting time and money, as they never grow properly and develop staggers quickly. They cannot stand heat when young, but ordinary cold does not effect them.

There are two or three varieties of Runners, the principal ones are Fawn and White and pure White, but so far the pure bred Whites have not competed in any competition in Australia.

Indian Runners have many ardent champions in England, and often keen articles appear in the leading poultry papers on the origin of the breed and which strain is pure or not. The principal ones admit that no pure bred Runner of the right strain lays green eggs; they must be white, and one fancier states "that they are trying to breed to the original type, as there are few birds to-day



Photo] ["*Feathered World*" *Bureau.*

ONE OF MR. J. DONALD'S WINNING INDIAN RUNNERS.

that possess the wonderful carriage and type of the original Runner."

Their principal points for show purposes is length of bill, perfectly straight, free from dishing, eyes, set high on top of head, long slim neck, and showing no signs of the junction into body, as it

should be hard to say where the neck leaves off and the body begins. Body slightly roached and rounded, tail finishing off straight out in line with body; legs set pretty close together so that they can run, if set on outside of body they waddle. The keel of the heavy laying ducks show up more than in exhibition specimens. The markings are described in *Standards*, but type is the backbone of a Runner.

The White Runner looks more uniform, as the correct markings on Fawn and White Runners are not easy to obtain. I look forward to the time in Australia when every market gardener, orchardist, utility poultry farmer and dairyman will have their flocks of Indian Runners, as there is no better outlay in any form of business as in the true Runner Duck.

TURKEYS.

Turkeys can be reared fairly easily in some parts of Australia, and the profits are also lucrative, but if you intend breeding a fair number, I may state emphatically that good land is necessary.

Land of a sandy sub-soil with plenty of timber and grass is best, and if a running stream is handy so much the better. Turkeys don't want to be coddled even when young, but cold, drifty sub-soil land will never suit turkeys when young, no matter how you feed. If you have ground like that I have mentioned, you can, in any of the coastal districts, turn them out after three days old and they will thrive, as any rain which may fall quickly percolates through a sandy sub-soil. A large shed or too, or a Mia Mia, is handy to have to shelter in should they feel disposed. If you have no natural shelter about, sow patches of barley here and there for that purpose. If a large plot of barley was sown, lanes could be cut through by the reaper, in which the coops might be placed, and the turkeys would thrive wonderfully. Wattle plantations are another natural harbour for turkeys.

The most suitable breed for all purposes is the American Bronze Wing. If you cannot afford to start with a full pen of these birds, buy a Bronze Wing cock and mate him with your common females, this will improve the progeny. One cock mated with eight or ten hens is about the right number. I prefer birds of two or three years to breed with, as a turkey is not fully matured till that age. The gobbler should not be extra heavy, but have him to suit your hens, otherwise the result will be unsatisfactory. One visit of the gobbler will fertilize all the eggs unless something is radically wrong. Remove the eggs as they are laid, but in setting a turkey hen set her in rather a dark secluded place. They are such close sitters that it is necessary to remove them off the nest daily, otherwise

they would starve. Feed them on maize, but do not let them wander away, as they are forgetful when on free range.

When hatched the young ones require no food for forty-eight hours. For their first meal you will find the V.C. chicken meal (an excellent preparation) the best—*see Rearing Chicks*. This can be continued for three of four weeks, also providing some chopped up vegetables such as lettuce or onions. After the first month you can scatter grain about. . Turkeys and their offspring are greatly troubled with lice, in fact, in these States seven out of ten die simply through these pests. Examine under the wings and on the head, and if they are noticed, dust with Little's Insect Powder, and follow suit with the mother. If the weather is cold and stormy the best plan is to confine the mother in a good-sized, roomy coop, and allow the poults free range in your barley lane. This is the best method for early hatches. Turkey mothers are not quarrelsome, in fact two or three will generally make up together with all their combined families.

Some gobblers are exceedingly hostile to newly hatched poults, so if you find your bird killing them, of course remove him out of the way. Young poults do not require to be overfed, as their natural instinct is to search for food, so after the first month scatter it about a little distance from the home.

Every farmer should try and raise turkeys, as the market is never glutted. Each year turkeys are becoming more appreciated in all parts of the world, so plenty of scope is left for the breeders to make good money. Western Australia is a splendid place for breeding; the land and climate are suitable, and the market good. They realise 1s. per lb., anything over twelve pounds weight. Foxes are not in the country, which is another consideration, as they can roost out. Turkeys are very hardy after three months old; they prefer to sleep out in trees or on fences, and can stand any amount of cold and rain.

Roup is their chief complaint after lice, therefore keep your eyes open so as to check any serious outbreak.

If you can give them fresh soil every year, so much the better, but with suitable soil and following these directions you should show a nice profit each season.

In bringing up young turkeys, it seems almost useless trying to rear them unless onion or garlic chopped up fine is used in their food once a day until they shoot the red. After they have developed that, then little trouble is experienced. Good money can be made out of turkeys on a farm if they are bought after they shoot the red, as they will pick up their own living, although some farmers say they are a nuisance around the stacks.

Great care must be used in buying turkeys. As a rule they are hardy, but different water and landscape seem to upset them quickly, and they are peeky things once they become sick, they have not

much ambition to live; so unless you can buy the turkeys in your immediate neighbourhood, it is a big risk to transfer them from a distance, as they are fretful.

In any case give rain water or half rain and half the other water you use to drink for the first week, and give onions chopped up with mash. Large hens are all right, but an extra big gobbler on medium hens is a mistake, as he only tears the hens to pieces, and often kills them. I have put in twenty and more stitches in the back of a female, through the size and awkwardness of gobbler.

Turkeys realized record prices this year (1912) in Australia for the Christmas market. I sold seven gobblers myself 24 lbs. weight at 29s. 6d. apiece, which is a long way higher than the price of prime sheep, and they rarely bring less than 6d. a lb. even in a glut year, so on a farm free from foxes they are a splendid asset.

In setting turkeys' eggs, it is advisable to set all the hen lays of the first batch under hens, then when the turkey goes broody remove her to break her off, and let her sit on the second lot of eggs; and in this way you will have more success, and have them out at the proper time of the year.

A form of glove is often used on the thumb toes of a heavy gobbler to prevent him from tearing the hens, paring the nail beforehand.

GEESE.

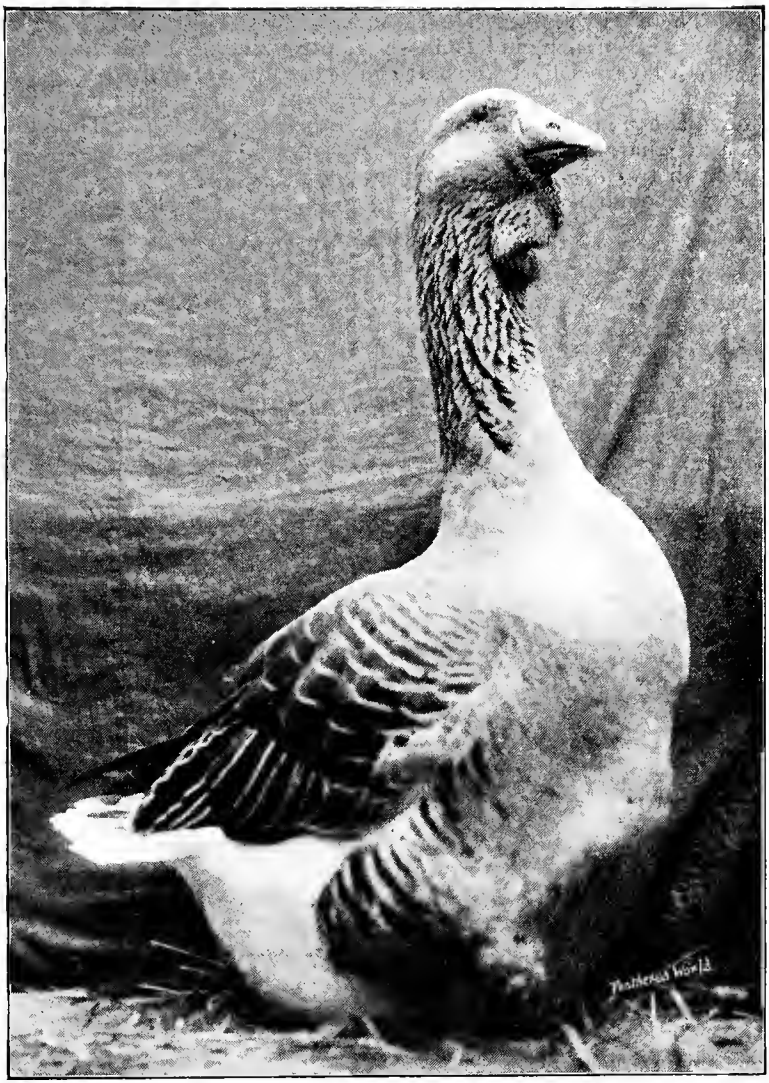
Nearly all cottagers in the country districts have their trio or quartette of geese; generally of the common or garden variety.

With ordinary watching, three geese will rear thirty goslings a year, which realize in the market from 4s. to 6s. a pair according to their condition. As they cost very little to rear, it is a sort of Christmas box for the lady of the house.

They want a good run with plenty of grass to secure the best results. The shed, if they are housed, should have the nest boxes located adjoining. The nests should be about two feet six inches square; each goose requires a separate nest. If they all lay in separate nests the eggs laid can be left, otherwise you will have to remove them till they set. Very little trouble is experienced in hatching, but do not meddle with the eggs during that period. The goose is a good sitter, but she should be induced to come off daily for a feed, also for a bath if you have one handy.

Do not allow the young goslings to go into a pond till they are at least a fortnight old.

The first week the food should consist of biscuit meal with a little boiled oatmeal and rice; after that they generally begin to shift for themselves. Geese live to a good age, but it is best to change the gander every three years.



Photo] ["*Feathered World*' *Bureau*.

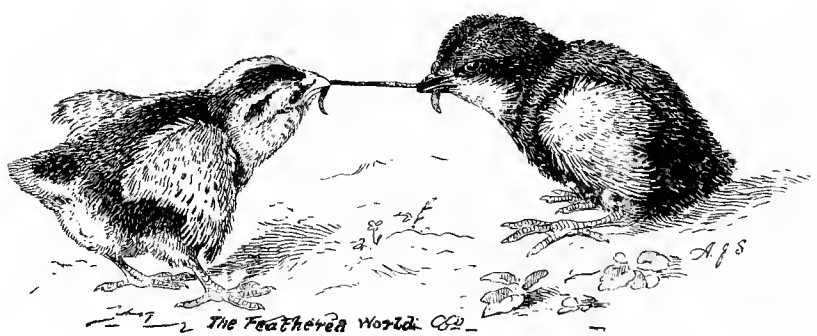
TOULOUSE GANDER.

The property of Mr. J. Y. Wheatley. 1st, Dairy and Palace.

There are four or five varieties of pure-bred geese, but the Toulouse, Embden, and Chinese are the three best. The latter is the best layer; I have known them to lay up to sixty-two eggs in a season. They resemble a swan in shape of neck and body, but they have none of the swan blood in their system. The Toulouse is a fine, hardy, and massive bird, and attains to a great size; anything between eighteen to thirty pounds is their usual weight. There should be a good opening for any farm to start with this variety, as new blood is sadly wanted in the States.

The Embden is a pure white bird, with a very handsome appearance, and is also a splendid bird for table purposes, as it shows no black pin feathers when plucked. As a bird for crossing with common geese they have a good reputation.

It is pretty hard to separate the sexes up to a certain age; I generally found that the one that laid the egg was the goose, and the one that didn't was the gander. But if you shut them up and go in to feed, you will find that the ganders keep on the outside edge, and are the last to feed—ladies before gentlemen.



THE TUG OF WAR.

Diseases.

AILMENTS of poultry vary, some are contagious, others only a local complaint, some are hereditary. Constant supervision must be exercised, as the success of any poultry yard is the freedom from disease.

Any fowl that appears mopish should at once be removed to the hospital for observation.

Bumble Foot.

This disease I find can be local, and is also hereditary. Some birds develop the disease for no apparent cause, a male bird will often get it through a single blow, and in such case the hereditary weakness is there, the seed or germ is lying dormant until the concussion sets it off. High perches are not the cause of it, as birds roosting on the ground or on very low perches develop the complaint. Unfortunately with male birds it is almost incurable. It is the most tantalizing disease of any in poultry. It is not contagious, but the bird must be removed if in breeding pen; fortunately it rarely occurs early in season. There are two forms, one with corn under foot or between toes—curable; the other is a swelling, enlarging, and almost incurable, in fact no treatment I have used, or have seen used, made any difference; lancing is useless, only cruelty to birds. It acts in the same form as cancer, and, personally, I call it "Cancer of the Foot." If there is no corn treatment is useless, let the bird alone, keep him in a yard by himself, if he is worth keeping, but it is far better to have the first loss, and have him off your mind, as it is a three or four months' affair even if he gets over it. If the corn is there cut alongside the corn both ways making a cross, then the corn is easily removed, syringe with permanganate of potash diluted and bandage with cocoanut oil, which is the Fiji natives' cure for all cuts and bruises. Keep on bed of straw or litter, and he should be well in a fortnight's time.

Cramp in Chicks.

Chicks develop this if kept too long on wooden or stone floors, or too much bottom heat is given in brooders.

Chicks must have Nature's soil until they are from four to five months old. If it occurs in brooders reduce the heat, and put a couple of inches of sand on bottom, spreading clean horse manure same thickness dry on top. Feed on bread and milk squeezed dry, to which a little oatmeal has been added.

Crop Bound.

Caused by an obstruction or indigestion. If it is the former you will have to open the top of crop, first removing the feathers, cut through the two skins, until you see the material in crop. Make the hole about three-quarters of an inch long, remove the whole of the contents of the crop (often dry grass or straw) with end of spoon, and clean out at finish with weak solution of permanganate of potash; sew up skins separately with silk, three stitches in each one will do, and feed on squeezed bread only for two days. No danger or pain, only a little confidence wanted; tie the bird's legs and wings with tape before operating. If the crop feels sloppy and extended, hold bird up carefully by the legs and work out the matter inside easily, assisting the operation by running your hand from crop along passage outside to mouth; let her have a spell now and again, and pour warm water down crop by a syringe, until it is all away, the last lot of water should contain a slight infusion of permanganate of potash. Feed on bread soaked in milk squeezed dry and keep by herself. In crop-binding you may be sure you are overfeeding, or not using regular hours; one of your systems is faulty—cleanliness, or feeding, or perhaps the yard is fowl sick.

Chicken Pox.

A highly contagious disease; great care must be exercised here. Always wash your hands in some disinfectant after handling a fowl with chicken pox. In no case rinse out water vessel of fowls if you have handled a bird with roup or chicken pox.

Chicken pox is easily cured, and does not affect the constitution of the fowl. It generally breaks out through excessive wet after a dry spell, and is transmitted by mosquitoes in Australia. The autumn months of Queensland, New South Wales, and South Australia always bring along chicken pox in a mild or serious form. Remove bird, anoint face with cocoanut oil and sulphur ointment, give bird sulphur and salts in mash food, and in ten days she will be cured. The warts will fall off, and no trace of their locality left. Dipping the heads in water containing roup powder is also a cure.

Cholera.

A highly contagious disease, one of the deadliest complaints on poultry farms run under the extensive system; seldom met with under the intensive system. Causes: Stagnant water, foul ground, bad feeding, or some poisonous compound in some green feed, carrot fern and such species. Cholera and roup are the two diseases that have caused all the disasters to poultry farmers, and are the curse of poultry life.

There is really no cure for cholera once the bird is affected,

as it is dead within forty-eight hours, often twenty-four. Symptoms: Fowl dejected, no appetite, does not plume itself, in great pain, often thirsty, has a slow stalking gait, and gapes often. Comb may be extra brilliant in colour, or turn purple, perhaps very pale; there is a greenish discharge, often a mixture of green, yellow fluid; it shuts its eyes, and prostration comes on.

Remove all birds immediately, sprinkle unslacked lime well all over the yard, and spray with hose. The least bit of tainted droppings of cholera is a disease carrier the moment the beak of the bird comes in contact with it. Use extra vigilance, watch carefully every movement of birds when feeding, also notice droppings. Exterminate the disease before it becomes chronic, or you will be exterminated from your poultry yard.

If the bird is a valuable one treat as follows:—Give three drops of laudanum in teaspoonful of sweet oil every four hours, 1 oz. of oil of rhubarb, oil of cloves, oil of peppermint, mixed with half-cup of brandy; give fifteen drops or half-spoonful in warm water. Chlorodyne sometimes cures, but it is largely a matter of luck or rather how soon you have caught the bird.

Brandy soaked in sponge cake is a handy remedy if noticed early at shows.

Burn all carcases, or bury deep and cover with quicklime, otherwise earth worms may feed on carcase, and on rising to surface be devoured again by fowls, and start its capers over again. It works on similar lines to anthrax in horses. If a horse dies with this disease and is buried, on another horse eating grass from the burial ground, it also will contract the disease. Feed on boiled rice, or bread soaked in milk, for twenty-four hours after the birds show improvement.

Catarrh.

This is a troublesome complaint, and, although often taken for roup, is different altogether. Except in rare cases matured birds do not suffer from it. Chickens are the great sufferers, the trouble starting towards the middle of summer. I have almost come to the conclusion that, on plants where a large number of chickens are reared, it is impossible to avoid it. It seems to be a natural summer complaint, especially in some parts of Australia—running on the same lines as whooping cough in children. The affected ones should be isolated and put on fresh ground in a well ventilated house. On no account shut the birds up, as this only aggravates the complaint. Put a little salts in their water, protect from wind, and give food with some cayenne pepper in it. With the coming of the autumn rains it will vanish as rapidly as it came. The principal cause is the crowding of the chickens together at night. This overheats the place, and the coming out of a heated chamber

to perhaps a snappy, cold change, that may have taken place overnight, results in an outbreak of this disease. Chickens should be broken up into small clutches after the end of November.

By those rearing only 40 or 50 chicks this trouble should be easily avoided, especially in the milder districts; but when you have 500 chickens to look after, it takes a lot of accommodation to divide up your flock so as to give all sufficient room. Removing birds on to fresh ground helps in a great measure to eradicate this complaint.

Canker.

There are two forms of Canker—canker of the comb and canker of the throat. The first occurs chiefly with Leghorns, Andalusians, Minorcas, and Anconas. It is generally the result of overshowing, and through forcing the comb of the bird becomes top heavy. The result is, canker will form in the weakest part, and if not attended to will eat into the comb, and if further neglected, into the brain, when the bird dies. It is curable if caught in time in the majority of cases. First, wash the affected part and apply liquid bluestone, also turn the bird out, not keeping it shut up, apply a little zinc ointment, two or three times within a week, till it recovers.

If it has a grip your only other course is to remove the comb entirely, with a sharp razor or scissors. This is a simple operation, only do not cut any nearer than half an inch from the head unless the canker is very low down, as there is an artery close in. The comb will not bleed much except in the front; it does not hurt the bird nearly so much as a five minutes' fight would do. On staunching with flour the bleeding will soon stop. You will then save the bird for breeding purposes, and it will always be in good condition after.

Canker in the throat is caused by overshowing, too much penning and confinement, and is also hereditary. A cheesy matter forms at the entrance to the throat, stopping up the windpipe, and which, if not attended to, will choke the bird. Treatment: Force the gullet up into the mouth, using your finger and thumb under the jaw of the bird, then scrape the canker away with a bit of stick, causing as little bleeding as possible, then anoint with tannic acid, or, if this be not procurable, liquid bluestone, or flowers of sulphur. Allow the bird freedom, do not keep it shut up.

Dysentery.

The symptons are similar to cholera, and the treatment following on the same line. Throw lime loosely all over the yard, then get your hose and wet the ground all over. Birds suffering with cholera or dysentery should be removed to the hospital as soon as possible, as their droppings are contagious, especially when you are feeding the other birds.

Comb Over.

Caused by confinement if it was right previously, or by low or high condition, or possibly canker of comb. If confined let the bird have its liberty, and give a tonic of Manning's pills; mix the spice with little water or butter and make pills size of first joint of little finger. If canker, remove comb as per directions in "Useful Items," under "How to fix up a Comb." Give Manning's spice pills, Salvitus, Turnbull's Stamina or Mervel.

Down Behind.

Often hens over fat will develop this. It feels like a great lump of rubber. The bird only lays in the late spring, and is often unfertile. Blame your feeding methods while the bird is moulting; too much fatty food. It is never curable. The bird may still win at shows, but a keen judge will penalize her; Rocks, Orpingtons, Langshans, Indian Game, and Dorkings are the principal sufferers.

Diarrhœa.

Caused by want of charcoal; always keep charcoal where fowls are kept in numbers to save disaster. Give teaspoonful of sweet oil or mix up teaspoonful of venetian red with a packet of salts. Make into half-pint of liquid, and give *dessert*-spoonful every twelve hours; two doses is generally sufficient.

Eggs.

Pale yolks, caused by want of green feed; eggs of peculiar shape, caused by ovarian troubles. Generally fed too forcing, and want of exercise. Change feed to oats only, and scatter well in litter.

Egg Eating. (See *Useful Items.*)

Egg-laying, Premature.

Young pullets that have come on rapidly often when passing the first egg will get their passage protruding, dangling it on the ground with the egg still in the passage. Remove egg, tie up legs of bird and gently put passage back into position; you may have to do this four or five times. Watch her, and if any further bother is experienced, anoint vent with sweet oil from an oil syringe, and keep her in a basket with legs tied up for a few hours.

Feather Eating.

Perhaps an epidemic, as I have seen it break out spontaneously in several houses on the one day. Maybe fowls have a language, if

so they certainly tell one another of the juicy morsels of growing feathers.

Supposed to be caused by want of exercise and meat, but I fancy indolent ways are the primary cause as it is generally contracted by hens during moult or just after, rarely by growing pullets. Culprits will have to be removed, generally the ones with all their feathers intact, the cock or cockerel is not the culprit. Feed oats deep in litter, anoint bird with bitter aloes and whisky if you are not able to remove, and cut off quarter inch of top beak of transgressors. Often hens will eat feathers from the ground, but that is not a vicious complaint; they want a tonic of spice—Singer's egg producer, Manning's Salvitus, Turnbull's Stamina or Mervel.

Frost-bitten Comb and Wattles.

Make up the following ointment, 2 oz. of cocoanut oil, 3 oz. of kerosene, 1 oz. of quinine. Mixed well, rub well into comb and wattles as soon as possible. If the parts are hard and swollen, lance and wash with hot water, and infusion of permanganate of potash.

As a preventive on extra cold nights use the following:—5 drachms vaseline, ½ drachm of whisky and turpentine, and 5 drachms glycerine. Mix and rub on overnight.

Gapes.

A distressing disease amongst chickens caused by weather conditions. Some ground seems particularly adapted for breeding gapes in England. We have little of it in Australia, I have never seen a case myself, although there may be some suitable localities. Roup powder in water or the advertised Gape Cures will deal effectually with it. A good dressing of lime on affected ground is not beneficial to the gape worm, the ordinary earth worm contains germs of gape worms so some experts say, but they are supposed to breed on long grass and wait for their opportunity to visit the windpipe of chicks. A feather dipped in kerosene put down the windpipe and then turned round, will dislodge the worm.

Insects.

The insects that live on the fowl are called feather lice, that is they live on the feather, and rarely attack any other part of fowl. They can always be exterminated by dusting with insect powder, or flowers of sulphur, yellow or black. They generally congregate under the vent of bird, and lay their eggs on the bottom of quill of a greyish hue. If eggs are very thick and in clusters, remove feathers also, and dust fowl again a fortnight after. Dust baths of ashes, fresh dirt, with a little flowers of sulphur added, will make their own dusting powder.

Red Mites.

Live anywhere in the house, in nest boxes, on the ground, but only attack the fowl for food, that is the life blood of the fowl.

They are ever trying to gain a foothold in the poultry house, and cracks, crevices, or the nesting material are their special places. The roosts must always be one foot away from the walls of houses, once they get in the walls you will have a strenuous job to eradicate them. Soft soap and kerosene emulsion is an easy fluid to make. Little's Phenyle is always ready, and is a good disinfectant as well. Carbolic limewash to which a little kerosene is added is also good, and colours up the inside of house.

During the commencement of summer, and into the autumn, insect life increases rapidly, and when allowed to become chronic, breed in myriads. I have seen poultry houses on farms with fowls laying in the boxes, simply crawling alive, covered with these white and black mites.

It is advisable to burn such a house, and build another, how the fowls lived was a mystery, a new fowl introduced would have been dead in forty-eight hours. Watch the nesting underneath, lice don't expose themselves until they are ravenous, and in numbers, but if perches do not touch walls, you can keep them in hand easily.

Ticks.

Fowl tick are similar to human bugs in appearance, only they will live on fowl, or in crevices, as they please, they will kill a fowl in twenty-four hours unless inoculated as a chick, fowls that have had occasional ticks on them become inoculated, although they will also become impoverished in blood, as the ticks suck the blood.

It is treated as a special disease in Australia. Notification must be sent in to the authorities and they will come out, and if necessary destroy all fowls, in any case the buildings are all burnt.

Fowl tick will live for eighteen months without food, I have seen them shut up in a glass bottle for that period, and they will migrate a mile away if they smell fowl.

Special houses with patent roosts are constructed in tick districts, particulars of which can be obtained from the Government Poultry Offices of Australia, or the Agricultural Department. The principal thing is the roosts and absence of cracks in houses to harbour them, keep them off the fowl and no trouble will ensue.

Liver Disease.

Irregularity of feeding and fowl sick-yards are the cause of this disease. It must be remembered that the liver is practically the only organ of the fowl that does the work. They have a small heart, only one small kidney, the liver is large in comparison, thus this organ is the first to go under to injudicious management.

Fowls with liver disease are better killed, as I say here emphatically, unless in special cases for Show purposes, never breed from a fowl that has had Roup or Liver Disease, as both are transmitted to the progeny. Utility breeders must never breed from an afflicted bird.

Turkey Rhubarb on threepenny piece three times a week, with a little quinine added is a cure, change everything, your feeding, your yards, more especially if other fowls contract it, a single case may be hereditary. Sprouted oats and clean wheat are the staple feed. Symptoms: Wasting away, similar to consumption, dejected, no appetite, etc., the difference between it and dysentery, etc., is easily noticed in the droppings.

Quilling or Rotten Feathering.

Fowls stuck in moult are constitutionally weak, the bath tub, and a tonic of Turkey rhubarb and quinine will help them, as well as sprouted oats and flowers of sulphur in food. Occasional doses of "Fellows' Syrup of Hypophosphates" is a grand tonic, both for this complaint and leg weakness.

Often tail feathers retain their quills. These can easily be removed by carefully running your finger nails along the feathers.

Rheumatics.

Place bird in hot water in which has been added a fairly strong solution of washing soda, after which apply cocoanut oil, turpentine, white of egg, as an embrocation.

Leg weakness is not to be confused with Rheumatics, the former is found on growing stock from four to five months old, the latter on adult birds.

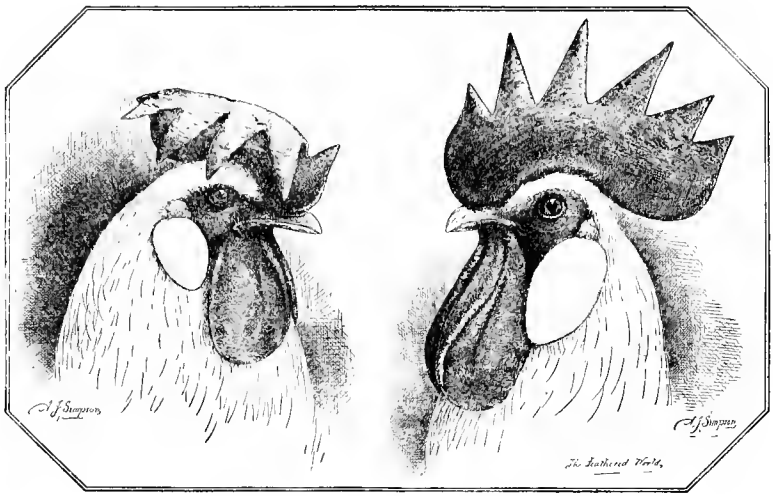
Leg weakness is prevalent on Barred Rocks in some districts, it is hereditary in some strains, the young growing cockerels are the principal sufferers. Ask your chemist to make up some quinine, iron, and strychnine pills, and give according to directions, or buy the pills as advertised for the purpose.

Roup.

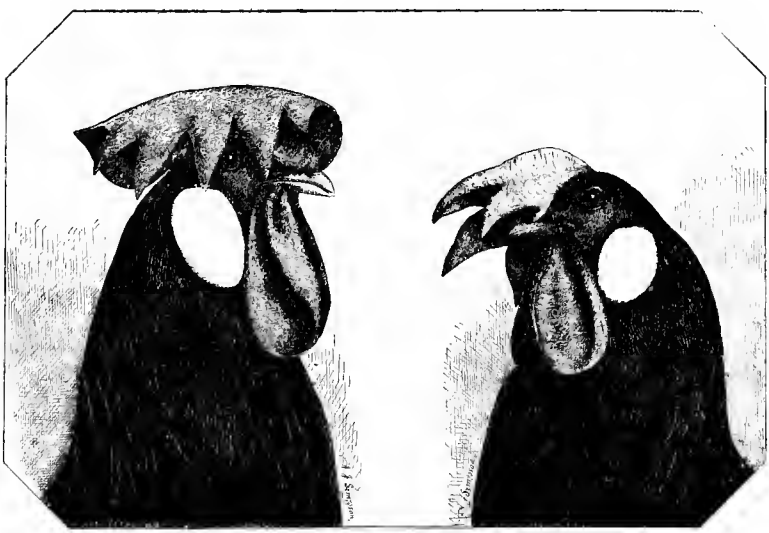
The worst ailment of poultry on a large breeding plant, nearly all failures can be attributed to this, cholera or vermin.

Roup has many forms. Simple Roup, Sugary Roup, Roup and Canker combined, Roup and Chicken Pox, and Diphtheritic Roup. Each have their own peculiarities and symptoms, which are easily discerned, and I have illustrated the chief signals, so as not to confuse them with one another.

Simple Roup.—Closing of eye, with a white mattery swelling, with no running from nostrils, or very little and clear throat, often contracted by draught at shows. Salts and ground ginger, mixed equal parts in liquid, one dessert spoonful every day, three doses,



(Cockerel Breeding. White Leghorns.)



(Pullet Breeding. Black Leghorns.)

SEX MATING IN LEGHORN BREEDS.

This illustrates extreme double mating. The females are correct, but there is no necessity to use a cock bird like the Black Leghorn.

bathe eye and nostrils with weak solution of permanganate of potash. Cured inside of a week. Isolate bird, and give mustard and pepper in soft food, or a good spice.

If the eye is closed open it, and the white matter will have to be removed either by pressing it, or by an instrument. If it is left in the eye will become petrified and lost. In nearly every instance this is caused by a draught, although certain months of the year, if it's an hereditary taint, the bird will develop it spontaneously, through the system becoming disorganised. Simple Roup is infectious, but not contagious.

Sugary Roup.—A slimy mass of congested matter in nostrils, looks like a mixture of white of egg and sugar, examine inside of mouth, looking up nostrils. A deadly form of roup, unless valuable kill and burn immediately, in any case never breed from it. Treatment: Salts and ginger, and swab out mouth and nostrils with roup wash, or the advertised Roup Powders.

It generally takes four weeks to cure if it is ever cured, the deadliest form of all the Roup, although fortunately not prevalent. Wash your hands thoroughly in disinfectant every time after handling bird, and keep constant watch on pen you removed this bird from. If any more develop, the whole pen will have to be disinfected, and all utensils treated. Little's Phenyle or lime will destroy all germs.

Roup and Canker are Simple Roup, developed into a more acute stage, highly contagious. Very often there is no sign in eye or nostrils, the mouth is often fairly choked before it is noticed, with a cheesy form of matter. Treatment: Remove cheesy growths with blunt piece of wood, and dust with tannic acid from a syringe, if not obtainable, powdered bluestone used very fine, or Roup Powder. If it's only an ordinary bird destroy, in any case on a utility farm it should never be used as a breeder. Give birds salts-ginger liquid every other day.

Chicken Pox and Roup are a grand couple to walk in, and you walk out, unless stringent precautions are taken. Chicken Pox looks bad enough, but the combination is not suitable for persons with nerves to tackle. Its horribly unsightly, give salts and ginger to lower the temperature of bird, dip the head of bird in fluid made from Roup Powder, opening mouth with finger and rinsing well inside, repeat three times a day, using fresh fluid each day. A little quinine should be used in the fluid of salts and ginger in all cases of Roup, as the system is feverish; for an ointment see Chicken Pox.

Diphtheritic Roup.

Symptoms: White spotted growths in mouth, and often discharge from eyes and nostrils.

The trouble about this form of Roup and Sugary Roup, on a large place, is that it takes a few days to develop, and often the

fowl will not show any outward symptoms until it is on the verge of collapsing. In the meantime you have conveyed the germs all over your place by rinsing out the water vessels with your hand, and transmitting the germ to all the water utensils. In early days this disease was catalogued as spontaneous, but that is erroneous, it is simply started in one pen, and the owner or his man has conveyed the disease all over the property. Chicken Pox and some form of Roup can be conveyed by the feet, if walking around the yards. Water utensils on a large establishment should never be touched by the hand, use a brush with some disinfectant for cleaning out water utensils, or spouting.

Treatment: Salts, ginger, and quinine. Remove spots as far as possible with blunt edge of piece of wood, and anoint with Roup Powder, Tannic Acid or Bluestone, feed as for simple Roup. Not contagious to human race, but keep all birds isolated, use plenty of disinfectants, always wash your hands, and keep separate vessels for hospital. Kill and burn the bird unless extra valuable as a breeder, but first loss is the safest. A dessertspoonful of kerosene once a day is a cure, after you have reduced the temperature of bird with salts and ginger, in most cases of Roup and Catarrh.

Scaly Legs.

It is really caused by a small parasite not visible to the naked eye which attacks all soft feathered fowls. The game varieties are not troubled so much with it. If a hen is set with scaly legs, and she is allowed to rear chicks, they will all develop it as they reach maturity.

Treatment is easy. Mix up equal parts of cocoanut oil, kerosene, and sulphur, yellow for light coloured fowls, black sulphur for dark legged breeds, wash the legs well first with carbolic soap, removing no scales, apply ointment, if very bad use double the quantity of kerosene, taking care not to go above the hocks on to the skin of fowl, as it is very penetrating. Repeat dose three days after without washing, after third dose allow a week, and then you will find all scales drop off. It is a lazy man's disease, because it is so easily cured.

Slipped Wing.

Often caused by a fight or a bad flight. Run a piece of tape around the wing in a couple of places, and sew through one of the quills of feathers to keep from falling off, generally right in a month, unless hereditary from birth.

Skin Diseases.

Zinc ointment, or cocoanut oil and sulphur applied on eruptions is good, also give sulphur in feed. Chemical foods and tonics are also used in conjunction.

Sore Vent or Cloaticis.

A cheesy growth in the vent generally found in adult cock birds and sometimes in females, it is supposed to be a form of syphilis.

Wash vent with carbolised soap and apply cocoanut ointment mixed with sulphur as previously described or cocoanut oil and boracic acid.

Staggers in Ducklings.

Very few ducklings of any description are hatched in winter; early spring is even passed without any considerable numbers being hatched, as the majority of duck's eggs set are not fertile till the spring, and the heavy weight ducks of Pekin, Rouen, and Aylesbury are seldom hatched till late in spring. The Indian Runner, Buff Orpington, and the utility duck of the Pekin, Aylesbury, and Rouens are the only kinds hatched early in any numbers, and it is the progeny of these that are likely to contract staggers, especially in weather that is inclined to be patchy; that is, jumping rapidly from sun and warmth to cloud and cold. In cold climates staggers in ducklings would be caused by bad management, but in the warm climates ignorance is chiefly the cause.

If ducklings are shut up at night and are kept in a sunny spot to catch the early morning sun the coop becomes heated, and the ducklings, if keep in too long before they are let out to have a drink, become thirsty and overheated, and then drink to excess, and it is not long before they topple over on their backs. Even if they are allowed out early in the morning before you are up and no water is handy they develop a thirst, which when given them they drink greedily and staggers ensue.

In early spring often a hot day will come and catch you unprepared. In Australia I have seen fifty out of a hundred lost in this manner, and I expect in England and America a sudden change for heat in the weather causes the deaths of hundreds of ducklings.

To avoid staggers the places must have plenty of shade. Provided you are blest with plenty of shrubs and tree shelter so much the better, but shade must be fixed up with lean-to's of some description, and water must be provided so that the ducklings can obtain it as soon as they want it in the morning. Have the vessels deep enough so that the ducklings can dip their beaks right down to cover the eyes. Keep the ducklings without water for half an hour only on some days in spring and many in summer and staggers is the result.

It is easy to guard against it, and if these simple directions are carried out you will have little trouble. The head of ducklings is very sensitive and become overheated quickly. The sun will drop them, especially when feeding, if it is extra warm. As a rule,

ducklings are hardy and far easier to rear than chickens. They require shelter from wind and rain, this coupled with the constant access to water and the ordinary methods of feeding will rear them successfully, providing they are bred from vigorous stock, as ducks cannot be inbred to the same extent as fowls, or fowls to the same extent as pigeons.

Ducklings require plenty of shell grit, green food, and a little chopped-up liver or meat to build up strong constitutions, and for new beginners to start, whether for market or utility, they are sure of a profit.

Muscovy ducklings are very hardy, and they are not so sensitive as Indian Runners. Muscovies are a stogy, solid breed, while the Runners are a nervy, sensitive mass of perpetual motion if bred from the right stock. But no matter what breed of ducklings you are rearing, be advised and take the precautions necessary and avoid disaster.

As so many Indian Runners are bred now in all parts of the world, my system for selecting the males from the females at two days old will save you rearing the drakes, unless you have a good market for them. As a rule, in Runners, the proportion of drakes hatched is two to one, and the expense of feeding and labour is a loss, as they are not a favourite in the market, although at ten weeks old the Runner drake is equal to any duck in flavour, wild or domesticated. It is not this class of duck that give the Runner a bad name for table, but the birds at twelve months old and upwards are certainly insipid eating. That is not the fault of the duck, but the vendor, or restaurant keeper.

To select ducks from drakes, proceed as follows: Examine the bills of the birds, and you will find the length fully a quarter of an inch longer on drakes than ducks. The top of the head is flatter, and the bill is generally free from coloured spots. The body is longer, and the general appearance of a drake is stronger. You will find the ducks have a rounder curve on top of head. The bills are shorter, and show a decided tendency to dishing, and, as a rule, the bills have a few black spots, more or less, on them. A "dish" beak means a sudden drop from the head to the beak, something like the inside of a soup dish.

Pekins, Aylesburys, Rouens, and Muscovies can be selected in the same manner, with this difference, that there is no spotting on the beaks of Pekins or Aylesburys.

The colour of Rouens beaks are darker, and the duck carries the access of colour.

Practise this a few times for experimental purposes first, and you will soon acquire confidence, and it will be an interesting and profitable study, as ducks can be fed differently and brought on more rapidly when required for market purposes only.

Worms

Are caused by tainted ground and bad feeding. Disinfect ground, remove fowls to new place while doing so. Give birds affected 12 drops of spirits of turpentine in spoonful of sweet oil an hour before breakfast and the last thing at night. Chicks in proportion 8 drops. Keep all birds affected in small pen by themselves and clean up droppings daily, using disinfectant freely.

Fowls have a number of other complaints, but these are the principal ones that are worth treating, the others are mostly of a sudden character, and require no remedy—such as dying on nest, dropping from perch at night, when feeding, etc., but the principal cause of disease is your mismanagement and tainted soil. A place may look all right but be a death trap for fowls.

Diseases in South Africa and Hot Districts.

Tick and Gapes.

SMEAR the head of young chicks with equal parts of paraffin, eucalyptus oil, and sweet oil, the day after hatching, also seven days later and the ravages of these pests will be reduced to a mininum.

The Tampan.

This is South Africa's curse in poultry yards, constant supervision is required. Where wood abounds, so does this local parasite. All wood work should be used outside of poultry houses, if other materials are used for walls and roof; if wood is used, then paint it with creosote at least once every quarter.

Thus in Africa, birds should not roost in trees; as once the tampan takes possession all efforts to kill it are wasted, without burning the trees. The spraying of houses with a mixture of ½-lb. soft soap, one gallon kerosene or paraffin, into one gallon of boiling water is recommended to eradicate the parasites.

A good ointment for smearing around the vents of birds is a mixture of equal parts creosote, eucalyptus oil, and cocoanut oil, but lard can be used in place of the latter.

Sand fleas are eradicated by the soft soap emulsion.

Fowl Sickness.

For years the breeders of poultry in South Africa in any quantities have been up against this local epidemic. The cause

has now been located to want of grit and gravel. Fowls in any country must have lime and mineral salts ; this latter is not to be confused with common salts or Epsom salts.

Mineral salts is obtained from stones, flint or gravel, and the powerful gastric juices of the gizzard dissolve the stones, and in the process liberate the mineral salts of which the stones are composed, and the salts are drawn into the blood through the organic process of the system.

In South Africa, only in certain localities, and in other countries as well there is an entire absence of grit in any form, and stone grit is far more important than shell grit, because in the absence of the latter lime can be added to the water as a substitute. Too much corn is fed in South Africa, and it only contains about one per cent. of mineral salt. Lucerne should be used freely, as it contains eight per cent. of mineral salt and helps to build up the stamina and constitutional vigour of the bird.

The moment the birds begin to look drowsy and languid, with a ragged, lustreless condition, the sickness is developing, and poor egg production, small and malformed eggs result; while the chicks lack stamina, are small in bone and spindle shanked.

If you have grit, your feeding is faulty ; if neither, the ground is tainted with germs from previous birds.

All water must be shaded, and as a preventative two grains only of permanganate of potash to a quart of water should be used every other morning, and Epsom salts used with bi-carbonate of soda—two quantities of salts to one of soda ; two oz. is sufficient for 100 birds, to be given in mash. This precaution is necessary during the rainy season.

In all cases of death by Roup, Chicken Pox, Dysentery, burn the carcases or bury deep and cover with lime.

POINTS OF POULTRY (I.).

1. Comb.
2. Face.
3. Wattles.
4. Ear-lobe.
5. Neck-hackle.
6. Breast.
7. Back.
8. Saddle.
9. Saddle-hackle.
10. Sickles.
11. Tail-coverts.
12. Tail-quills.
13. Wing Bow.
14. Wing Bar.
15. Wing Bay.
16. Wing Butt.
17. Flights.
18. Thighs.
19. Hocks.
20. Shanks.
21. Spur.
22. Toes.

The Poultry Club Standards.

(By kind permission of the Poultry Club of England.)

ANCONAS (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Moderately long and deep, and inclined to width. *Beak:* Of medium length and with a moderate curve. *Eyes:* Prominent. *Comb:* (*a*) Single or (*b*) rose; (*a*) of medium size, upright, with deep serrations (broad at their base), and five to seven spikes, the outline forming a regular convex curve, carried well back, and following the line of the head, free from excrescences (or thumb marks or side spikes); (*b*) of medium size, low and square at front, and tapering towards the leader (which should follow the curve of the neck), the top free from hollows and covered with small coral-like points of even height. *Face:* Smooth. *Ear-lobes:* of medium size, inclined to almond shape, and of kid-like texture. *Wattles:* Size in keeping with the comb, long, and of fine texture.

Neck.—Long and well covered with hackle feathers.

Body.—Of medium length; broad shoulders and narrow saddle; full and rounded breast carried upwards; large wings well tucked up.

Tail.—Large and carried well out.

Legs and Feet.—*Legs:* Of medium length, set well apart, the thighs almost hidden by the body feathering, and the shanks and feet quite free from feathers. *Toes:* Four, rather thin, and well spread.

Carriage.—Active.

Weight.—From 6 lb. to 7 lb.

HEN.

With the exception of the single *Comb*, which falls over one side of the face, preferably in a single fold, and partly hiding the face, the general characteristics are similar to those of the cock, allowing for the natural sexual differences.

Weight.—From 5 lb. to 6 lb.

COLOUR.

Beak: Yellow, with dark or horn shadings, but preferably not wholly yellow. *Eyes:* Iris, orange-red; pupil, hazel. *Comb, Face, and Wattles:* Bright red. *Ear-lobes:* White. *Legs and Feet:* Yellow, mottled.

Plumage.—White markings (free from ticks) on beetle-green ground, the more evenly V-mottled with white the better, but mottled and not laced. *Tail:* Black to the roots and tipped with white. *Wing Flights:* Black tipped with white. *Under-colour:* Black.

SCALE OF POINTS.

Beetle-green ground colour, dark to skin	25	Legs and beak	10
Purity of white, quality and evenness of mottling	25	Eyes	5
Tail	15	Lobes	5
Comb	10	Condition	5
			100

Serious defects; White in face; plumage other than black and white; white or light under-colour; other than four toes; wry tail or other deformity.

ANDALUSIANS (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Moderately long and deep, and inclined to width. *Beak:* Stout and of medium length. *Eyes:* Full. *Comb:* Single, medium size, upright, with deep serrations (broad at their base), the back portion following the curve of the skull but not touching the neck, free from excrescences (or thumb marks or side spikes) *Face:* Smooth and free from feathers. *Ear-lobes:* Of fair size, almond-shaped, of kid-like texture, free from wrinkles, and fitting closely to the face. *Wattles:* Long and broad, and of fine texture.

Neck.—Rather long in proportion to the size of the body, and well covered with hackle feathers.

Body.—Large; broad shoulders and narrow saddle; slightly rounded back sloping towards the tail; full and round breast; long wings, carried well up, and close to the body, and the ends well covered by the saddle hackles.

Tail.—Large and flowing, carried moderately high, though not approaching "squirrel" fashion, and with long and well-arched sickles.

Legs and Feet.—*Legs:* Rather long, the shanks quite free from feathers. *Toes:* Four, straight and thin.

Carriage.—Very upright and active.

Weight.—From 7 lb. to 8 lb.

HEN.

With the exception of the *Comb*, which falls over one side of the face, preferably in a single fold, and covering one eye, the general characteristics are similar to those of the cock, allowing for the natural sexual differences.

Weight.—From 5 lb. to 6 lb.

COLOUR.

Beak: Dark slate or horn. *Eyes:* Dark red or red-brown. *Comb, Face, and Wattles:* Bright red. *Ear-lobes:* Pure white. *Legs:* Dark slate or lead blue.

Plumage.—Ground, clear silver blue, with distinct black lacing on each feather, except that the cock's *hackles*, *back*, *shoulders*, *wingbows*, *sickles*, and *tail coverts* are black or purple-black, with a rich gloss, and the hen's *neck-hackle* is rich lustrous black, showing broad lacing on the tips of the feathers at the base.

SCALE OF POINTS.

Colour of plumage	.. ..	20	
Lacing	.. ..	20	
Size and shape	.. .. ..	15	
Condition	.. ..	15	
Comb	.. ..	10	
Lobes	.. ..	10	
Face	.. ..	10	
		——	
		100	

Serious defects: In cocks, much white in face or red in lobes; drab or rusty saddle or hackle; any other colour of legs and feet than light to dark slate; squirrel or wry tail; comb much over; crooked toes; feathered shanks or feet. In hens, erect comb, and any of the above defects which apply.

BRAHMAS (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Small, rather short, of medium breadth, well rounded, with a slight prominence over the eyes. *Beak:* Short, curved, and very strong. *Eyes:* Large and fairly prominent. *Comb:* Triple, or "pea," as small as possible, fitting very closely to and drooping behind to follow the line of the head. *Face:* As smooth and as free from feathers or hairs as possible. *Ear-lobes:* Long, of fine texture, and free from feathers. *Wattles:* Small and well rounded, of fine texture, and free from feathers.

Neck.—Long, well covered, with flowing hackles reaching well down to the shoulders, and free from twisted feathers. A depression should be apparent at the back of the skull between the head feathers and the upper hackle feathers.

Body.—Broad and square, with great depth. *Breast:* Full and carried well forward with the breast-bone horizontally. *Back:* Short, either flat or slightly hollow between the shoulders, the saddle to rise about half-way between the hackle and the tail, and to continue to rise until it reaches the tail coverts. *Wings:* Of medium size, with the lower line carried horizontally, free from twisted or slipped feathers, and tucked up under the saddle feathers, which should be of ample length.

Tail.—Of medium length, rising from the line of the saddle and carried nearly upright, with the quill feathers spreading well out, and the tail coverts broad and abundant, well curved, and nearly covering the quill feathers.

Legs and Feet.—*Legs:* Of medium length (not too short), powerful, well apart, and feathered; the thighs large, and so set that the lower feathers of the breast cover them in front; fluff soft and abundant, covering the hind parts and standing well out behind the thighs; hocks amply covered with soft rounded feathers, or with quill feathers provided they are accompanied with proportionately heavy shank and foot feathering; shank feather as profuse as possible, standing well out from the legs and toes, extending under the hock feathers and to the extremity of the middle and outer toes, profuse leg and foot feather without vulture hock being desirable. *Toes:* Four, straight, long, and spreading.

Carriage.—Sedate but fairly active.

Weight.—From 10 lb. to 12 lb.

Plumage.—Profuse, but hard and close compared with that of the Cochin.

HEN.

With the exception of the *Neck*, which is rather short, and the *Legs*, which are short in proportion to the size of the bird, the general characteristics are similar to those of the cock, allowing for the natural sexual differences.

Weight.—From 7 lb. to 9 lb.

COLOUR.

Beak: Yellow, or yellow and black. *Eyes:* Orange red, pearl, or grey, orange-red preferred, since pearl or grey eyes are generally signs of weak constitution, and have a tendency to blindness. *Comb, Face, Ear-lobes, and Wattles:* Bright red. *Legs and Feet:* Orange-yellow, or yellow; the legs often show a deep red tinge between the scales and at the back of the hock joint.

THE DARK.

Plumage of the Cock.—*Head:* Silvery white. *Neck-hackle:* Silvery white, with a sharp stripe of brilliant black in the centre of each feather tapering to a point near its extremity and free from white shaft. *Breast, under-part of Body, Thighs, and Fluff:* Intense glossy black. *Back:* Silvery white, except between the shoulders, where the feathers should be glossy black, laced with white. *Saddle:* Similar to neck-hackle. *Wings:* Bows, silvery white;

primaries, black, mixed with occasional feathers having a narrow white edge on outside of web; secondaries, part of outer web forming "bay" white, remainder of feathers forming "butt" black; coverts, glossy black, forming a distinct bar across the wing when folded. *Tail:* Black, or coverts laced or edged with white. *Leg-feathers:* Black, or black slightly mixed with white, but black preferred.

Plumage of the Hen.—*Head:* Silvery white, or white striped with black or grey. *Neck-hackle:* Similar to that of the cock, or the centres showing pencilling as on the body. *Tail:* Black, or black edged with grey, or with pencilling. *Remainder of Plumage:* Ground colour, any shade of clear grey; pencilling black, or a darker shade of grey than the body or ground colour, following the outline of each feather, fine, sharply defined, uniform, and as numerous as possible.

THE LIGHT.

Plumage of the Cock.—*Head and Neck-hackle:* Similar to those of the Dark. *Saddle:* White or white slightly striped with black, white preferable and the dark saddle only admissible in birds with very dark neck-hackles. *Wings:* Primaries, black, or black edged with white; secondaries, white on outside web, black on part of inside web. *Tail:* Black, or black edged with white; coverts, glossy black, some evenly laced with white. *Remainder of Plumage:* Clear white, with either white, blue-white, or slate under-colour, though this latter should not be visible when the feathers are undisturbed. A mixture of black and white is admissible in the shank and toe feathering.

Plumage of the Hen.—*Neck-hackle:* Silvery white striped with black, the striping being more dense at the lower part of the hackle, and the black centre of each feather to be entirely surrounded by a white margin. In other respects the colour of the hen is similar to that of the cock.

SCALE OF DEFECTS.

IN THE DARK VARIETY.

COCK.

	Deduct up to
Colour: impure white, 10; breast patched or splashed with white, 7; tail splashed with white, 5; excessive white in feet or shanks, 3; other defects, 6 ..	31
Head (including stain of white in lobes, 2)	11
Hackle: want of stripe, 5; scanty, 4..	9
Legs: feathering, 6; pale shanks, 2	8
Size	8
Carriage or symmetry	8
Wings: primaries out of order ..	6
Saddle: scanty or Cochin carriage	5
Condition	5
Fluff: scanty	3
Tail: shape or carriage	3
Toes: curved	3
	100

HEN.

	Deduct
Colour: dull or uneven ground, 9; white in foot feather, 4; other defects, 5	18
Marking: irregular pencilling of body, 10; of shank feathering, 3	13
Head (including stain of white in lobes, 2)	10
Legs: feathering, 7; pale shanks, 2	9
Breast: streaky or hollow ..	9
Size	8
Carriage or symmetry	8
Cushion: scanty or Cochin carriage	6
Condition	5
Hackle: scanty	4
Fluff: scanty	4
Tail: shape or carriage	3
Toes: curved	3
	100

IN THE LIGHT VARIETY.

COCK.

	Deduct
Colour: impure white, 10; splashes of white in tail, 5; black in breast, 4; much black in hock, 4; black in fluff, 3; other defects, 4	30
Head (including stain of white in lobes, 2)	10
Hackle: want of stripe, 5; scanty, 4	9
Legs: feathering, 6; pale shanks, 2	8
Size	8
Carriage or symmetry	8
Saddle: scanty, or Cochin carriage, 5; striped, 2	7
Wings: primaries out of condition	6
Condition	5
Fluff: scanty	3
Tail: shape or carriage	3
Toes: curved	3
	100

HEN.

	Deduct
Colour: much black in hock, 15; impure white, 10; black splashes, 10; other defects, 6..	41
Head (including stain of white in lobes, 2)	10
Legs: feathering, 7; pale shanks, 2	9
Size	8
Carriage or symmetry	8
Cushion: scanty, or Cochin carriage	6
Condition	5
Hackle: scanty	4
Fluff: scanty	4
Tail: shape or carriage	3
Toes: curved	2
	100

Serious defects: Comb other than pea shape; badly twisted hackle or wing feathers; total absence of leg feather; great want of size in adults; total want of condition; white legs; deformity of any kinds; buff on any part of the plumage of Lights; much red or yellow in the plumage or much white in the tail of Dark cocks; utter want of pencilling, or patches of brown or red in plumage of Dark hens.

CAMPINES (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Moderately long and deep, and inclined to width. *Beak:* Rather short. *Eyes:* Prominent. *Comb:* Single, of medium size, upright, evenly serrated, free from excrescences, the back carried well out but clear of the neck. *Face:* Smooth. *Ear-lobes:* Of medium size, inclined to almond shape, and free from wrinkles. *Wattles:* Fairly long in proportion to the comb, and of fine texture.

Neck.—Of medium length, and well furnished with hackle.

Body.—Broad, narrowing to the tail, close and compact, rather long back, full and round breast, large and neatly tucked wings.

Tail.—Of good length, carried well out from the body, and with broad and plentiful sickles and secondaries.

Legs and Feet.—*Legs:* Of medium length, and shanks free of feathers. *Toes:* Four on each foot, slender and well spread.

Carriage.—Alert and graceful.

Weight.—7 lb.

HEN.

With the exception of the *Comb*, which falls over one side of the face, the general characteristics are similar to those of the cock, allowing for the natural sexual differences.

Weight.—5 lb.

COLOUR.

Beak: Horn. *Eyes:* fris, dark brown; pupil, black. *Comb, Face, and Wattles:* Bright red. *Ear-lobes:* White. *Legs and Feet:* Leaden blue; toe-nails, horn.

THE SILVER.

Plumage.—*Head and Neck-hackle:* Pure white. *Remainder of Plumage:* Ground colour pure white, and barring pure black with rich beetle-green sheen, every feather being barred in a transverse direction with the end white, the bars clear and with well defined edges, running across the feather so as to form, as near as possible, rings around the body, and three times the width of the ground (white) colour. On the breast and under-parts of the body the barrings should be straight or slightly curved, but on the back, the shoulders, the saddle hackle, and the tail of a V-shaped pattern. The cock should be furnished with properly developed saddle hackles.

THE GOLD.

Plumage.—*Head and Neck-hackle:* Rich gold, and not washed-out yellow. *Remainder of Plumage:* Ground colour rich gold, and barring pure black with rich beetle-green sheen, and markings as in the Silver.

SCALE OF POINTS.

Markings	30	Comb	5
Colour: neck-hackle, 12; sheen 10	22	Eyes	5
Size	10	Lobes	5
Condition	10	Legs and feet	5
Tail (development and carriage)	8		100

Serious defects: Even barring; pencilled ground colour; sprigs on comb; legs other than leaden blue; white in face; red eyes; feather or fluff on shanks.

COCHIN (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Small. *Beak:* Curved, short, stout at the base. *Eyes:* Expressive. *Comb:* Single, upright, neatly arched, perfectly straight, free from excrescences, of fine texture, and symmetrically notched or serrated. *Wattles:* Long, thin, and pendant. *Ear-lobes:* Sufficiently developed to hang nearly or quite as low as the wattles.

Neck.—Rather short, and carried somewhat forward, thickly furnished with hackle, which should flow gracefully over the shoulders.

Body.—Large and deep. *Back:* Broad but very short. *Saddle:* Broad and large, with a gradual and decided rise towards the tail, forming a harmonious line with that member. *Wings:* Small, closely clipped up, the flights being neatly and entirely tucked under the secondaries. *Breast:* Broad and full, coming as low as possible.

Tail.—Small and soft, with as little hard quill as possible, and carried low or nearly flat.

Legs and Feet.—*Thighs:* Large, and thickly covered with fluffy feathers standing out in a globular form. *Hocks:* Nicely and entirely covered with soft curling feathers, but as free as possible from any stiff quills (vulture hocks). *Shanks:* Short and thick, wide apart, and heavily feathered down the outside, the feathering to start out well from the very hock, and continue to the ends of the middle and outer toes. *Toes:* Four, large, straight, and well spread.

Carriage.—Rather forward, high at the stern, and dignified.

Weight.—From 10 lb. to 13 lb.; cockerel from 8 lb. to 11 lb.

HEN.

Head.—*Skull:* Very small. *Beak:* As in the cock. *Comb and Wattles:* Also similar, but as small as possible, the comb being uniformly serrated. *Ear-lobes:* Well developed, but smaller than those of the cock.

Neck.—As short as possible, carried well forward, and thickly furnished with hackle.

Body.—Large, nearer a square than that of the cock, the shoulders being rather more prominent. *Back:* Very flat, wide, and short. *Cushion:* Exceedingly broad, full, and convex rising from as far forward as possible and almost burying the tail. *Wings:* As in the cock, but smaller in proportion, the points being nearly buried in the abundant body-feathering. *Breast:* Full, the keel as low as possible.

Tail.—Very small, carried almost horizontally, and nearly buried in the cushion.

Legs and Feet.—As in the cock.

Carriage.—Tending forward, high at the cushion, and with a very matronly appearance.

Weight.—From 9 lb. to 11 lb.; pullet, 7 lb. to 9 lb.

COLOUR.

THE BLACK.

Beak: Yellow, horn, or black. *Comb, Face, etc.:* As in the Buff. (The comb in black Cochins has a great tendency to be rough, but this is to be avoided.) *Eyes:* Bright red, dark red, hazel, or nearly black. *Legs:* Lizard.

Plumage.—A rich black, well glossed (dull black very objectionable) and free from golden or red feathers.

THE LEMON-BUFF, SILVER-BUFF, OR CINNAMON.

Beak: Rich yellow. *Comb, Face, Ear-lobes, and Wattles:* Bright red. *Eyes:* To match the plumage as nearly as possible. White or pearl eyes are admired by many, but are very apt to become blind. Red is preferable to any colour, as it denotes greater vigour of constitution; but red eyes in buffs are very rare. *Legs:* Yellow, and fading in old birds, with a shade of red between the scales.

Plumage of the Cock.—*Breast and Under-parts:* Any shade of lemon-buff, silver-buff, or cinnamon, provided it be even, and free from mottling. *Neck-hackle, Back, Shoulders, Wings, and Saddle:* Any shade of deeper and richer colour which harmonises well—lemon, gold, orange, or cinnamon—the wings to be of perfectly sound colour, and free from mealiness. *Tail:* Of a still darker tint, but as free from black as possible; white in the tail is very objectionable in any colour except the White variety.

Plumage of the Hen.—*Body:* All over an even shade, free from mottled appearance. *Hackle:* A deeper colour to harmonise, free from black pencilling or cloudiness, cloudy hackles being especially objectionable. *Tail:* As free from black feathers as possible. Birds must match in the same pen, and in matching different sexes the hen's body colour must match that on the cock's breast and lower parts.

THE CUCKOO.

Beak: Rich bright yellow, but horn-colour permissible. *Comb, Wattles, etc.:* As in the Buff. *Eyes:* Bright red. *Legs:* Brilliant yellow.

Plumage.—Ground-colour of blue grey, barred or pencilled across with bands of dark blue grey; the cock's hackle to be as free from a golden or red tinge as possible, and his tail free from either black or white feathers.

THE PARTRIDGE OR GROUSE.

Beak: Yellow or horn colour. *Comb, Wattles, etc.:* As in the Buff. *Eyes:* Bright red. *Legs:* Yellow, of a dusky shade.

Plumage of the Cock.—*Hackle:* Rich bright red or orange red, with a dense black stripe in each feather. *Back, Shoulder-coverts, and Wing-bow:* Rich red, of a more decided and darker shade than the hackle. *Wing-coverts:* Metallic green-black, forming a wide and sharply-cut bar across the wing. Secondaries, rich bay on outside web, which is all that appears when the wing is closed; black on the inside web; end of every feather black. Primaries, very dark bay on outside, dark on inside web. *Saddle:* Rich red or orange red, either same colour as (or one shade lighter than) the hackle. *Breast, Under-parts, Thighs, and Leg-feathers:* Glossy black, as intense as possible. *Tail:* Black, richly glossed; white in the tail not a disqualification, but very objectionable.

Plumage of the Hen.—*Hackle:* Bright gold, rich gold, or orange gold, with a broad black stripe in each feather, the marking extending well over the crown of the head. *Remainder of Plumage:* Brown ground-colour distinctly pencilled in a crescent form with rich dark brown or black, the pencilling being perfect and solid up to the throat, the leg-feather to be pencilled as the body.

THE WHITE.

Beak: Rich bright yellow. *Comb, Face, etc.:* As in the Buff. *Eyes:* Pearl or bright red. *Legs:* Yellow.

Plumage.—Pure white, free from any straw or red shade, or ticking of black or buff. The cock will often show a straw tinge on his upper parts, but this is to be avoided as far as possible.

SCALE OF POINTS.

Colour or marking in Partridge or Cuckoo	20	Fluff	7
Size	15	Tail	5
General symmetry	10	Hackle	5
Leg feather	10	Ear-lobes	5
Head	10	Condition	5
Cushion	8		100

Serious defects: Primary wing feathers twisted on their axis—"slipped" wing, the primaries being outside the wing is objectionable, but cannot be considered as a sufficiently serious defect to cause a bird to be entirely thrown out of competition; utter absence of leg-feathers; legs of any colour than yellow or flesh, except in Blacks, which may be black; white or black feathers in Cuckoos; badly twisted or falling combs; crooked backs, wry tails, or any other actual deformity.

CROAD LANGSHANS (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Small, and full over the eyes. *Beak:* Fairly long and slightly curved. *Eyes:* Large. *Comb:* Single, medium size, straight and upright, free from side sprigs, evenly serrated with five or six spikes (five preferred), of fine texture. *Face:* Smooth, and of fine texture. *Ear-lobes:* Well developed, pendant, and of fine texture. *Wattles:* Rather large and of fine texture.

Neck.—Of medium length, and with full hackle.

Body.—*Back:* Broad, of medium length, flat at the shoulders, and the saddle rising abruptly to the tail, the saddle being abundantly furnished with hackles. *Breast:* Deep and well rounded, with a long breast-bone, and the keel slightly rounded. *Wings:* High or low, the latter more usually.

Tail.—Fan-shaped, carried rather high, with plenty of side hangers, and the two sickle feathers some six inches or more beyond the rest.

Legs and Feet.—*Legs:* Thighs rather short and covered with soft feathers; shanks of medium length, small boned, standing well apart, and

feathered down the outer sides (not too heavily nor scantily). *Toes:* Four, long, straight and slender, the outer toes being feathered.

Carriage.—Graceful and extremely active.

Weight.—9 lb.

HEN.

With the exception that the *Fluff* should be rather more abundant, the general characteristics are similar to those of the cock, allowing for the natural sexual differences.

Weight.—7 lb.

COLOUR.

Beak: Light to dark horn. *Eyes:* Brown to very dark hazel, the darker the better. *Comb, Face, Wattles, and Ear-lobes:* Brilliant red. *Legs and Feet:* Blue-black, showing pink between the scales, the web and bottom of the feet pink-white (the deeper the pink the better), and toe-nails white.

Plumage.—Dense black, with a brilliant beetle-green gloss and free from purple or blue tinge.

SCALE OF POINTS.

Size	15	Legs and feet	11
Symmetry	15	Thin skin and white flesh ..	11
Richness of colour	15	Fine bone	11
Condition	11		——
Head and comb	11		100

Serious defects: Yellow legs; yellow at base of beak or around eyes; five toes; permanent white in ear-lobes; slate or blue legs in young birds; white feathers in adults; coloured feathers; decided blue or purple sheen or barring; white tips to feathers; brown or black patches on toe-nails; white in shank and toe feathers; wry tail; lop comb; side sprigs.

DORKINGS (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Large and broad. *Beak:* Stout, well proportioned, and slightly curved. *Eyes:* Full. *Comb:* Single or rose in Darks, single in Reds and Silver-Greys, rose in Whites and Cuckoos. The single comb should be moderately large, broad at the base, and firmly set on the head, of perfectly upright carriage and evenly serrated, free from thumb marks or any excrescent growths such as side spikes. The rose comb should be moderately broad and square fronted, and narrowing behind to a distinct and slightly upturned leader, covered on top with small, coral-like points of even height and free from hollows. *Face:* Smooth. *Ear-lobes:* Moderately developed, hanging as nearly as possible about one-third the depth of the wattles. *Wattles:* Large and pendant, and free from any excrescent growths.

Neck.—Rather short, and covered with abundant hackle which should fall well over the back, giving the neck the appearance of being very broad where it joins the body and tapering to the head.

Body.—Deep and massive, and as large as possible, long, rectangular shape when viewed sideways, and tightly feathered. *Breast:* Broad and well rounded, with long and straight breast-bone. *Back:* Broad and moderately long, with full saddle, inclining downwards to the tail. *Wings:* Large, carried well up, and close to the sides.

Tail.—Full and sweeping, and carried well out (a "squirrel" tail being objectionable), with broad and well-curved sickles and abundant side hangers.

Legs and Feet.—*Legs:* Short and strong, the thighs well developed, but almost hidden by the body feathering, and the shanks stout and round (square or sinewy bones being very objectionable), set well apart, and free from any sign of shank feathers, with the spurs set on the inner side and pointing

inwards. *Toes:* Five on each foot, round and hard ("spongy" feet to be guarded against), the front long, straight, and well spread, the fourth distinctly apart from the fifth and inclining towards the ground, the fifth coming away distinctly from the shank and turned up the leg.

Carriage.—Stately, with the breast forward.

Weight.—From 12 lb. to 14 lb.; cockerel from 9 lb to 10 lb. The Red, 8 lb.; cockerel, 6 lb.

HEN.

Except that the single *Comb* should fall over one side of the face, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—From 9 lb. to 10 lb.; pullet, from 7 lb. to 8 lb. The Red, 7 lb.; pullet, 5 lb.

COLOUR.

Beak: White or horn, dark horn permissible in Darks. *Eyes:* Bright red or yellow iris, the former preferred. *Comb, Face, Wattles, and Ear-lobes:* Brilliant (or coral) red. *Legs and Feet* (including toe-nails): Dead (or snow) white, the former free from red or pink down the sides, and the toes free from such colours in the webbing or any other part.

THE CUCKOO.

Plumage.—Light blue grey ground, each feather barred across with bands of dark grey or blue, the markings to be uniform and the colours shading into each other so that no distinct line or separation of the colours is perceptible.

THE DARK (OR COLOURED).

Plumage of the Cock.—*Hackle and Saddle:* White or straw ground, more or less striped with black. *Back:* Various shades of white, black and white or grey, sometimes mixed with maroon (bronze objectionable). *Wings:* Bow, white, or white mixed with black on grey; coverts or bar, black, glossed with green; secondaries, white on outer web, black on inner web. *Breast and Under-parts:* Jet black, white mottling not permissible. *Tail:* Black, richly glossed, a little white on primary sickles permissible, but white hangers decidedly objectionable.

Plumage of the Hen.—*Hackle:* White or pale straw, striped with black or dark grey. *Breast:* Salmon-red, each feather tipped with dark grey verging to black. *Tail:* Nearly black, or rich copper with the outer feathers slightly pencilled. *Remainder of Plumage:* Nearly black, or approaching a rich dark brown, the shaft showing a dull white, and each feather slightly pale on the edges, except on the wings, where the centre of the feather is a brown-grey ground covered with a small rich marking, surrounded by a thick lacing of the black, and free from red.

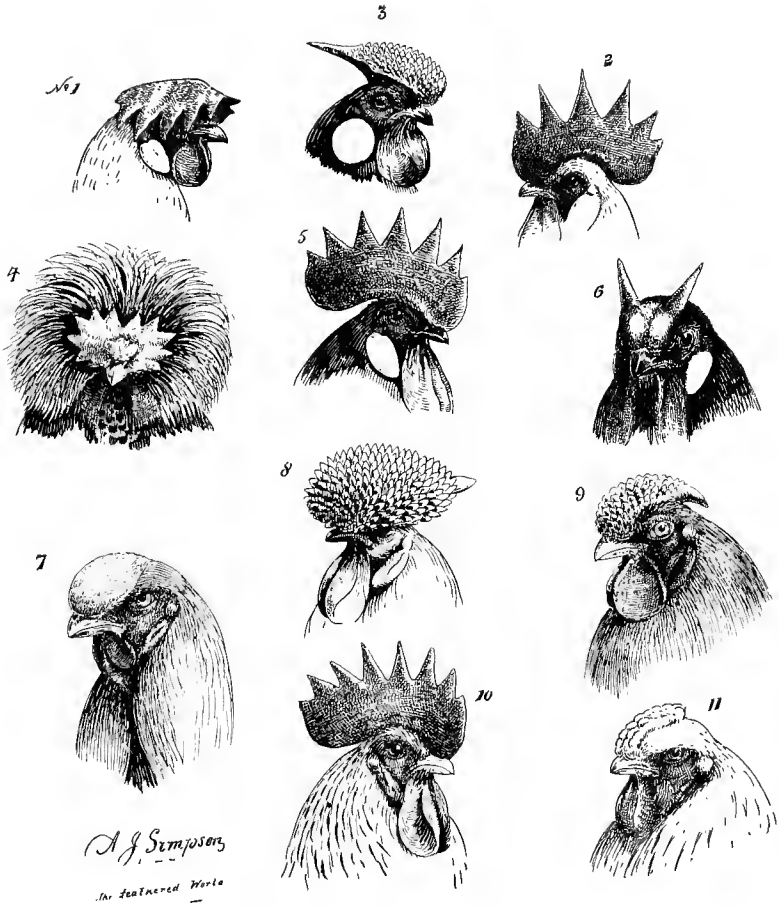
THE RED.

Plumage of the Cock.—*Hackle and Saddle:* Bright, glossy red. *Back and Wing-bows:* Dark red. *Remainder of Plumage:* Jet black, glossed with green.

Plumage of the Hen.—*Hackle:* Bright gold, heavily striped with black. *Tail and primaries:* Black or very dark brown. *Remainder of Plumage:* Red-brown, the redder the better, each feather more or less tipped or spangled with black, and having a bright yellow or orange coloured shaft.

THE SILVER GREY.

Plumage of the Cock.—*Hackle:* Pure silver white, free from straw tinge or rustiness, a very narrow stripe of grey in the lower feathers being permissible, although not desirable. *Back and Saddle:* Pure silver white, free from striping or yellow tints. *Wings:* Coverts and bow, silver white; bar, lustrous black, glossed with green or blue; secondaries, white on outer web, black on inner web, with a black spot at the end of each feather, and when the



POINTS OF POULTRY (II.): COMBS.

1, Leghorn Pullet; 2, Leghorn Cockerel; 3, Rosecomb; 4, Leaf Comb (Houdan); 5, Minorca Cock; 6, La Flèche; 7, Malay Cock; 8, Redcap Cock; 9, Wyandotte Cock; 10, Dorking Cock; 11, Pea or Triple Comb (Brahma).

wing is closed the corner appearing snow white with a black upper edge; primaries, black with a white edge on outer web. *Breast, Under-parts, and Tail:* Jet black, free from any white mottling or grizzling, although in old cocks a slight grizzling of the thighs is not a fatal defect.

Plumage of the Hen.—*Hackle:* Silver white, especially on the cap, the lower hackle striped with a narrow line of black, a copper-coloured hackle not allowable. *Breast:* Rich robin red or salmon red, shading off to ash-grey on the thighs. *Body:* Clear silver grey, fine pencilled with darker grey (the pencilling following the outer line of the feather), and free from any red or brown tinge, or any black dapplings. (The effect may vary from soft dull grey to bright silver grey, an old-fashioned grey slate best describing the colour.) *Tail:* Darker grey, inside feathers black.

THE WHITE.

Plumage.—As white as snow, and free from straw tinge.

SCALE OF POINTS.

	Dark	*Silver Grey or Red*	*Cuckoo or White*
Size	21	15	15
Symmetry	20	20	20
Colour	18	24	15
Fifth toe	15	15	15
Condition	10	10	10
Head	8	8	17
Feet; condition of	8	8	8
	100	100	100

Serious defects: Other than five toes; legs other than white or with any vestige of feathers; spurs outside the shank; single combs in Whites or Cuckoos, rose combs in Silver-Greys or Reds; any coloured feathers in Whites; very long legs; crooked or much swollen toes; bumble feet; distinct double toe-nails; round back, twisted breast-bone, wry tail, or any other actual deformity.

FAVEROLLES (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Broad, flat, and short. *Beak:* Stout and short. *Comb:* Single, of medium size and upright carriage, with four to six serrations, and of smooth surface. *Face:* Muffled. *Beard and Muffling:* Full, wide, and short. *Ear-lobes and Wattles:* Small, and partially concealed by the muffles.

Neck.—Short and thick, and well let into the body.

Body.—Thick and deep and "cloddy." *Breast:* Broad, with a deep keel bone coming well forward but not too rounded. *Back:* Flat and square, very broad across the shoulders and saddle. *Wings:* Small, carried closely to the body.

Tail.—Of medium length, and carried rather upright, the feathers being broad. Long, thin, and flowing tail feathers, carried either low or straight, are very objectionable.

Legs and Feet.—*Legs:* Thighs short and wide apart, shanks of medium length, stout and straight, and carried well apart (narrowness, or any tendency to be in-kneed, is very objectionable), and sparsely feathered down to the outer toe. *Toes:* Five on each foot, the fifth being divided from the fourth, and the outer toe sparsely feathered.

Carriage.—Active and alert.
Weight.—7 lb. to 8½ lb.; cockerel, 6½ lb. to 7½ lb.

HEN.

With the exception that the *Comb* is much smaller in proportion, and that the *Tail* is fan-shaped, the general characteristics are similar to those of the cock, allowing for the natural sexual differences.
Weight.—6 lb. to 7 lb.; pullet, 5 lb. to 6½ lb.

COLOUR.

Beak: Horn or white. *Eyes:* Grey or hazel. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* White.
Plumage of the Cock.—*Beard and Muffling:* Solid black. *Hackles:* Straw. *Back and Shoulders:* A mixture of black, white, and brown. *Breast, Thighs, and Under-fluff, Tail, and Shank feathering:* Black. *Wings:* Bow, straw; bar, black; secondaries, pure white on the outer edge of the feathers, and black on the inner edge and at the tips; primaries, black.
Plumage of the Hen.—*Beard and Muffling, Breast, Thighs and Fluff:* Cream. *Remainder of Plumage:* Wheaten brown, the neck-hackle being striped with a dark shade of the same colour (but free from black), and the wings being of a light shade.

SCALE OF POINTS.

Colour	25	Condition	10
Symmetry	20	Comb	10
Muffling	20		—
Size	15		100

Serious defects: Skin and legs other than white; absence of beard and muffs; featherless shanks and outer toes; other than five toes on each foot; hollow breast; any bodily deformity.

GAME, MODERN (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Long, fine, and narrow across the eyes. *Beak:* Long and gracefully curved, and strong at the base. *Eyes:* Prominent. *Comb:* Single, small, upright, of fine texture, and evenly serrated at its edge. *Face:* Smooth. *Ear-lobes and Wattles:* Fine and small to match the comb as nearly as possible. (NOTE.—It is customary to exhibit Game cocks after being dubbed, having their comb, ear-lobes, and wattles removed, and leaving the head and lower jaw smooth and free from ridges.)
Neck.—Long and slightly arched, fitted with "wiry" feathers, but thin at the setting on of the body.
Body.—Short back, wide front, and tapering to the tail. *Back:* Flat, and shaped like a smoothing iron. *Wings:* Short, strong, and powerful. *Shoulders:* Prominent and carried well up.
Tail.—Short, fine, and closely whipped together, carried slightly above the level of the body, with the sickles fine and well pointed, and only slightly curved.
Legs and Feet.—*Legs:* Thighs strong and muscular, shanks long and well rounded. *Toes:* Four in number, long, fine and straight, the fourth or hind toe carried straight out and flat on the ground, not downwards against the ball of the foot, which, known as "duck-footed," is most objectionable.
Carriage.—Upstanding and active.
Weight.—7 lb. to 9 lb.
Plumage.—Short and hard.

HEN.

The general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—5 lb. to 7 lb.

COLOUR.

THE BIRCHEN.

Beak: Dark horn. *Eyes:* Black. *Comb, Face, Wattles, and Ear-lobes:* Dark purple. *Legs and Feet:* Black.

Plumage of the Cock.—*Hackle, Back, Saddle, Shoulder-coverts, and Wing-bows:* Silver-white, the neck-hackle with narrow black striping. *Remainder of Plumage:* A rich black, the breast having a narrow silver margin round each feather, giving it a regular laced appearance gradually diminishing to perfect black thighs.

Plumage of the Hen.—*Neck-hackle:* Similar to that of the cock. *Remainder of Plumage:* A rich black, the breast very delicately laced as in the cock.

THE BLACK-BREASTED RED.

Beak: Dark green. *Eyes, Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs:* Willow.

Plumage of the Cock.—*Cap:* Orange red. *Neck-hackle:* Light orange, free from black stripe. *Back and Saddle:* Rich crimson. *Wings:* Bow, orange; bar, green-black: secondaries, rich bay on the outer edge of the feathers, black on the inner edge and tips, only the rich bay showing when the wing is closed; primaries, black. *Remainder of Plumage:* Green-black.

Plumage of the Hen.—*Neck-hackle:* Gold, slightly striped with black, running to clear gold on the cap. *Breast and Thighs:* Breast a rich salmon, running to ash on thighs. *Tail:* Black, except the top feathers, which should match the body colour. *Remainder of Plumage:* A light partridge brown ground, very finely pencilled, and a slight golden tinge pervading the whole, which should be even throughout and free from any ruddiness whatever, and with no trace of pencilling on the flight feathers.

THE BROWN-RED.

Beak: Very dark horn, black preferred. *Eyes, Comb, Face, Wattles, Ear-lobes, Legs and Feet:* Black.

Plumage of the Cock.—*Hackles, Back, and Wing-bow:* Bright lemon, the neck-hackle feathers striped down the centre with green-black, not brown. *Remainder of Plumage:* Green-black, the breast feathers edged with pale lemon as low as the top of the thighs.

Plumage of the Hen.—*Neck-hackle:* Light lemon to the top of the head, the lower feathers being striped with green-black. *Remainder of Plumage:* Green-black, the breast laced as in the cock, the shoulders free from ticking and the back from lacing. (NOTE.—There should be only two colours in Brown-Red Game—viz. lemon and black. In the cock the lemon should be very rich and bright, and in the hen light; the black in both sexes should have a bright green gloss, known as beetle-green.)

THE GOLDEN DUCKWING.

Beak: Dark horn. *Eyes:* Ruby red. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* Willow.

Plumage of the Cock.—*Hackle:* Cream white, free from striping. *Back and Saddle:* Pale orange or rich yellow. *Wings:* Bows, pale orange or rich yellow; bars and primaries, black with blue sheen; secondaries, pure white on the outer edge of the feathers, black on the inner edge and tips, the pure white alone showing when the wings are closed. *Remainder of Plumage:* Black, with blue sheen.

Plumage of the Hen.—*Hackle:* Silver white, finely striped with black, *Breast and Thighs:* Salmon, diminishing to ash grey on thighs. *Tail:* Black. except top feathers, which should match the body colour. *Remainder of Plumage:* French or steel grey, very slightly pencilled with black, and even throughout.

THE SILVER DUCKWING.

Beak, Eyes, Comb, Face, Wattles, Ear-lobes, Legs, and Feet: As in the golden variety.

Plumage of the Cock.—*Hackle, Back, Saddle, Shoulder-coverts, and Wing-bows:* Silver white. Secondaries, pure white on the outer edge of the feathers, black on the inner edge and tips of bay, the pure white alone showing when the wing is closed. *Remainder of Plumage:* Lustrous blue-black.

Plumage of the Hen.—*Hackle:* Silver white finely striped with black. *Breast and Thighs:* Breast a pale salmon diminishing to pale ash grey on thighs. *Tail:* Black, except top feathers, which should match body colour. *Remainder of Plumage:* Light French grey, with almost invisible black pencilling.

THE PILE.

Beak: Yellow. *Eyes:* Bright cherry-red. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* Rich orange yellow.

Plumage of the Cock.—*Hackles:* Bright orange; dark or washy hackles are to be avoided. *Back and Saddle:* Rich maroon. *Wings:* Bow, maroon; bar, white, free from splashes; secondaries, dark chestnut on the outer edge, and white on the inner edge and tips, only the dark chestnut showing when the wing is closed; primaries, white. *Remainder of Plumage:* Pure white.

Plumage of the Hen.—*Neck-hackle:* White, tinged with gold. *Breast:* Rich salmon. *Remainder of Plumage:* Pure white.

SCALE OF POINTS.

Style and shape	30	Legs and Feet	10
Colour	20	Head	5
Condition and shortness of feather	10	Neck	5
Eyes	10		
Tail	10		100

Serious defects: Eyes other colour than standard; flat shins; crooked breast-bone; twisted toes or duck feet; wry tail; crooked back.

GAME, OLD ENGLISH (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Medium length, and tapering. *Beak:* Slightly curved and strong at base. *Eyes:* Large, bright, and prominent, full of expression, and alike in colour. *Comb:* Single, small, upright, of fine texture, and evenly serrated at its edge. *Face:* Of fine texture. *Ear-lobes and Wattles:* Fine and small to match the comb as nearly as possible. (NOTE.—It is customary to exhibit Game cocks after being dubbed—*i.e.* having their comb, ear-lobes, and wattles removed, and leaving the head and lower jaw smooth and free from ridges.)

Neck.—Long, and very strong at the junction with the body, furnished with long and wiry feathers covering the shoulders.

Body.—*Breast:* Broad and well developed. *Back:* Short and flat, tapering to the tail. *Shoulders:* Broad. *Wings:* Long, full, and round, inclining to meet under the tail, amply protecting the thighs, and furnished with hard quills.

Tail.—Sickle feathers abundant, broad, curved main feathers with hard and strong quills, and carried well up, but not of the "squirrel" type.

Legs and Feet.—*Legs:* Thighs short, thick, and muscular, well set and held wide apart; shanks of medium length, finely and evenly scaled, and round, not fat on shin, with the spur set low. *Toes:* Four on each foot, long, clean, even, and spreading, the back toe standing well backward and flat on the ground.

Carriage.—Bold and sprightly, the movements quick and graceful, as if ready for any emergency.

Weight.—5 lb. to 6 lb.

Plumage.—Hard and glossy.

Handling.—Firm flesh, but corky and light, with plenty of muscle and strong contraction of the hips and legs.

HEN.

With the exception that the *Tail* is inclined to fan shape, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—4 lb. to 5 lb.

COLOUR.

THE BLACK.

Beak: Dark. *Eyes, Comb, Face, Wattles, and Ear-lobes:* Red or dark. *Legs:* Sound self-colour.

Plumage.—Glossy black throughout.

THE BRASSY WINGED.

With the exception of a little dark lemon on the shoulders of the cock, the variety is similar to the Black-Breasted Red

THE SILVER DUCKWING.

Beak: In character with legs. *Eyes:* Red. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* Blue, olive, white, or yellow.

Plumage of the Cock.—*Hackles, Back, and Shoulders:* Silver, free from dark streaks. *Breast and Thighs:* Black. *Wings:* Bows, silver white; bar, steel blue; secondaries, white on outer web, black on inner web, the white alone showing when the wings are closed; primaries and ends, black. *Tail:* Black.

Plumage of the Hen.—*Hackle:* Silver, striped with black. *Breast and Thighs:* Pale fawn. *Back and Wings:* Dark grey. *Tail:* Grey and black.

THE RED PILE.

Beak: In character with legs. *Eyes:* Bright red. *Comb, Face, Wattles, and Ear-lobes:* Brilliant red. *Legs and Feet:* White, yellow, or willow.

Plumage of the Cock.—*Hackles:* Orange-red or chestnut-red. *Back and Shoulders:* Deep red. *Wings:* Secondaries, bay on the outer web and white on the inner web, the bay alone showing when the wings are closed. *Remainder of Plumage:* White.

Plumage of the Hen.—*Hackle:* Light chestnut. *Breast and Thighs:* Chestnut, with a light shade towards the thighs. *Remainder of Plumage:* White.

THE BLACK-BREASTED RED.

Beak: In character with legs. *Eyes:* Red. *Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs and Feet:* Any sound self-colour. (NOTE.—In white-legged birds, daw eyes, and white showing in flights and tail, are not to be considered a disqualification.)

Plumage of the Cock.—*Hackles:* Orange-red, free from dark feathers. *Back and Shoulders:* Deep red. *Wings:* Deep red, with a rich dark blue bar across; secondaries, bay; primaries, ends black. *Remainder of Plumage:* Black, with lustrous green gloss.

Plumage of the Hen (Partridge).—*Hackle:* Golden red, streaked with black. *Back and Wings:* Partridge. *Breast and Thighs:* Shaded salmon. *Tail:* Black, shaded with brown.

THE BRIGHT OR GINGER RED.

Beak, Eyes, Comb, Face, Wattles, Ear-lobes, Legs, and Feet: See notes on the Black-Breasted Red.

Plumage of the Cock.—*Hackles:* Light golden red, free from streaks. *Back and Shoulders:* Bright red. *Wings:* As in the Black-Breasted Red. *Remainder of Plumage:* Black, shaded with brown.

Plumage of the Hen.—*Hackle:* Golden red, black streaks not to be considered a disqualification. *Breast and Thighs:* Light wheaten. *Back and Wings:* Dark wheaten. *Tail:* Black, with a shading of brown.

THE BROWN RED.

Beak: Dark horn. *Eyes:* Dark. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* Dark.

Plumage of the Cock.—*Hackles:* Orange-red, streaked with black. *Back and Shoulders:* Dark red. *Breast and Thighs:* Black, marked with brown. *Wings:* Dark brown or black. *Tail:* Black.

Plumage of the Hen.—*Hackle:* Black, striped or shaded golden. *Remainder of Plumage:* Black, or of a uniform brown mottle.

THE SPANGLED.

Beak: In character with legs. *Eyes:* Red or daw. *Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs and Feet:* Self-colour or mottle.

Plumage.—Either black, blue, buff, or red, with white spangles, the marking to be as even as possible. *Tail:* Black and white.

THE WHITE.

Beak: Yellow. *Eyes:* Red or pearl. *Comb, Face, Wattles, and Ear-lobes:* Scarlet red. *Legs and Feet:* White or yellow.

Plumage.—Pure white throughout.

OTHER VARIETIES.

Among other varieties recognised are Hennies, Muffs, and Tassels in all colours; Furnesses, Polecats, Black-breasted Crow-winged Reds, Blue, Red and Yellow Duns, Blue and Yellow Piles, Yellow, Brown, Streaky, and Marble-breasted Duckwings, and Birchen Greys.

SCALE OF POINTS.

Feet, 9; shanks, 6; thighs, 4; spurs, 2	21	Handling	8
Breast and body, 12; back, 8	20	Plumage	7
Eyes, 6; head, 4; beak, 4	14	Neck	6
Carriage	10	Wings	6
Colour	8		100

Serious defects: Crooked or humped back; crooked breast-bone; wry tail; flat shins; duck feet; bad carriage; rotten plumage; or any unsoundness.

HAMBURGHS (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Fine. *Beak:* Short. *Eyes:* Full. *Comb:* Rose, firmly and evenly set on the head, square fronted, gradually tapering towards the back and narrowing into a long, finely-ended spike or leader pointing in a straight line with the surface of the comb, and without any downward tendency, the top level and covered with small coral-like points of even height, and free from hollows. *Face:* Smooth, free from coarse skin and stubby hairs. *Ear-lobes:* Smooth, round, and thick, varying in size according to sex and variety. *Wattles:* Smooth, round, and thin.

Neck.—Of medium length, and covered with full and long hackle feathers coming well over the shoulders.

Body.—Of medium length, wedge shaped, fairly full at the shoulders and narrowing to the root of the tail; well rounded breast, and large and neatly tucked wings.

Tail.—Long and sweeping, carried well up but avoiding "squirrel" carriage, the sickles and secondaries broad and plentiful.

Legs and Feet.—*Legs:* Of medium length, the thighs slender and the shanks fine and round. *Toes:* Four on each foot, slender, and well spread.

Carriage.—Graceful.

Weight.—Pencilled, about 5 lb.; other varieties, heavier.

Plumage.—Very profuse.

HEN.

The general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—Pencilled, about 4 lb.; other varieties, heavier.

COLOUR.

THE BLACK.

Beak: Black or horn. *Eyes, Comb, Face, and Wattles:* Red. *Ear-lobes:* White. *Legs and Feet:* Black.

Plumage.—A rich black, with a distinct green sheen from head to tail, and especially on the sickle feathers and tail-coverts, any approach to bronze or purple tinge or barring to be avoided.

THE GOLD PENCILLED.

Beak: Horn. *Eyes, Comb, Face, and Wattles:* Red. *Ear-lobes:* White. *Legs:* Lead blue.

Plumage of the Cock.—A bright red bay or bright golden chestnut, except the *Tail*, which is black, the *Sickle feathers* and *Coverts* being laced all round with a narrow strip of gold.

Plumage of the Hen.—The ground colour similar to the general colour of the cock, and except on the *hackle* (which should be clear of all marking, if possible), each feather distinctly and evenly pencilled straight across with fine parallel lines of a rich green black, the pencilling and the intervening colour to be the same width, and the finer and the more numerous on each feather the better.

THE SILVER PENCILLED.

Except that the ground colour, and in the cock the tail lacings, are silver, this variety is similar to the former.

THE GOLD SPANGLED.

Beak, Eyes, Comb, Face, Wattles, Ear-lobes, Legs, and Feet: As in the Pencilled varieties.

PUPILS AT MISS LE PATOUREL'S WASHING BIRDS FOR EXHIBITION.

Plumage of the Cock.—Ground colour rich bright bay or mahogany; striping, spangling, tipping, and tail rich green black. *Hackles and Back:* Each feather striped down the centre. *Wings:* Bows, dagger-shaped tips at the end of each feather; bars (two), rows of large spangles, running parallel across each wing with a gentle curve, each bar distinct and separate; secondaries, tipped with large round spangles, forming the "steppings." *Breast and Under-parts:* Each feather tipped with a round spot or spangle, small near the throat and increasing in size towards the thighs, but never so large as to overlap.

Plumage of the Hen.—The ground colour and spangling are similar to those of the cock. *Hackle, Wing-bars, and "Steppings":* As in the cock. *Tail-coverts:* Black, with a sharp lacing or edging of gold on each feather. *Remainder of Plumage:* Each feather tipped with a spangle, as round as possible, and never so large as to overlap, the spangling commencing high up the throat.

THE SILVER SPANGLED.

Beak, Eyes, Comb, Face, Wattles, Ear-lobes, Legs, and Feet: As in the Pencilled varieties.

Plumage of the Cock.—Ground colour, pure silver; spangling and tipping rich green black. *Hackles, Shoulders, and Back:* Each feather marked with small, dagger-like tips. *Wings:* Bows, dagger-shaped tips, increasing in size until they merge into what is known as the third bar; bars (two) and secondaries, also *Breast* and *Under-parts* similarly marked to those of the Gold Spangled variety. *Tail:* Ending with bold half-moon shaped spangles; sickles, with large round spangles at the end of each feather; coverts, similar, though spangles not so big.

Plumage of the Hen.—The colours of the ground and spangling are similar to those of the cock. *Hackle:* Marked from the head with dagger-shaped tips, which gradually increase in width until they merge into spangles at the bottom. *Wings:* Secondaries, as in the cock; bars similar to those of the Gold Spangled hen. *Tail:* Each feather with a half-moon shaped spangle at the end; coverts, reaching half-way up the true tail feathers, form a row across the tail (each side) of round spangles. *Remainder of Plumage:* Marked as in the Gold hen.

SCALE OF POINTS.

THE BLACK.

COCK.		HEN.	
Head: comb, 15; face, 15; ear-lobes, 15	45	Head: comb, 15; face, 15; ear-lobes, 15	45
Colour	25	Colour	35
Tail	15	Shape, style, and condition	15
Shape, style, and condition	15	Tail	5
	100		100

THE PENCILLED.

COCK.		HEN.	
Tail	35	Markings	60
Colour	30	Head: comb, 10; ear-lobes, 5; face, 5	20
Head: comb, 10; ear-lobes, 10; face, 5	25	Colour	10
Shape, style, and condition	10	Shape, style, and condition	10
	100		100

THE SPANGLED.

The points for this variety (both colours and either sex) are the same as those for the Pencilled hen, given above.

Serious defects: White face; single comb; red ear-lobes; "squirrel" or wry

tail; or any other deformity. (NOTE.—If a Hamburgh has the power to rest its tail on either side at will, bringing the tail over from one side to the other, it shall not be accounted wry-tail. This is according to the standard of the Hamburgh Club.—W. W. B.)

HOUDANS (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Fairly large, and with a decidedly pronounced protuberance on top, and crested. *Crest:* Large, full, and compact, round on top and not divided or "split," composed of feathers similar to those of the hackle, inclining slightly backward to fully expose the comb. *Beak:* Rather short and stout, well curved, and with wide nostrils. *Eyes:* Bold. *Comb:* Leaf type (somewhat resembling a butterfly placed at the base of the beak), fairly small, well defined, and each side level. *Face:* Muffled. *Muffling:* Large, full, and compact, fitting around to the back of the eyes and almost hiding the face. *Ear-lobes:* Small, entirely concealed by muffling. *Wattles:* Small and well rounded, almost concealed by beard.

Neck.—Of medium length, and with abundant hackle coming well down on the back.

Body.—Broad, deep, and lengthy, as in the Dorking.

Tail.—Full, with the sickles long and well arched.

Legs and Feet.—*Legs:* Short and stout, well apart, and free from feathers. *Toes:* Five in number, and similar to those of the Dorking.

Carriage.—Bold and lively.

Weight.—9 lb.; cockerel, 7 lb.

HEN.

With the exception that the *Crest* is of globular shape, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—7 lb.; pullet, 6 lb.

COLOUR.

Beak: Horn. *Eyes:* Red. *Comb, Face, and Watties:* Bright red. *Ear-lobes:* White or tinged with pink. *Legs and Feet:* White mottled with lead blue or black.

Plumage.—Glossy green-black ground with pure white mottles, the mottling to be as evenly distributed as possible, except on the flights and secondaries, and in the male bird the sickles and tail-coverts which are irregularly edged with white. The black generally preponderates to a great extent in young Houdans, but what mottling there is should be even and clean.

SCALE OF POINTS.

THE COCK.		THE HEN.	
Size	18	Size	20
Comb	15	Colour	15
Colour	15	Crest	15
Crest	12	Muffling	12
Shape	12	Shape	10
Legs and feet	10	Legs and feet	10
Condition	10	Condition	10
Muffling	8	Comb	8
	100		100

Serious defects: Red or straw-coloured feathers; spur outside the shank; feathers on shanks or toes; other than five toes on each foot; any deformity.

INDIAN GAME (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Rather broad, long and deep, not so "keen" as in English Game, nor so thick as in Malays, yet slightly beetle-browed. *Beak:* Short and well curved, stout where it is set on the head, and giving the bird a powerful appearance. *Eyes:* Full and bold. *Comb:* Pea type, small, and fitting closely to the head. *Face:* Smooth and of fine texture. *Ear-lobes and Wattles:* Small. *Throat:* Bare, but not so much as in English Game, being dotted with small feathers. (NOTE.—It is customary to exhibit Indian Game cocks after being dubbed—*i. e.* having their comb, ear-lobes, and wattles removed, and leaving the head and lower jaw smooth and free from ridges.)

Neck.—Of medium length, fitted with short hackle, which just covers the base of it.

Body.—Broad and thickly set, short and flat back, prominent shoulder butts, fairly deep and well rounded breast. *Back:* Gradually tapering from shoulders to tail. *Wings:* Short and muscular, carried rather high in front, but well rounded at the point and closely tucked at the ends, and not flat-sided.

Tail.—Medium length, with short, narrow secondary sickles and coverts, close and hard, and with a slight droop.

Legs and Feet.—*Legs:* Very strong and thick, thighs round and stout, shanks of medium length, and set well apart. (NOTE.—The shank should not in any case be so long as that of the Malay, nor in any way stilty, but of sufficient length to give the bird a Game appearance.) *Toes:* Four on each foot, long, straight, and strong, well spread, with the hind toe set low, nearly flat on the ground, and extending backwards.

Carriage.—Very upright and vigorous, with sloping back.

Weight.—10 lb.

Plumage.—Narrow, short, hard, and close.

Handling.—Firm flesh, with plenty of muscle.

HEN.

With the exception that the *Tail* is rather short, well venetianed but close, and hardly so low, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—8 lb.

COLOUR.

Beak: Horn or yellow. *Eyes:* Varying from pale yellow to pale red. *Comb, Face, Wattles, and Ear-lobes:* Brilliant red. *Legs:* Rich yellow or orange.

Plumage of the Cock.—*Head, Neck, Breast, Under-fluff, Thighs, and Tail:* Black, with a rich green-black sheen, the base of the neck and tail hackles a little broken with bay or chestnut, which should be almost hidden by the body of the feathers. *Back:* Glossy green-black (or beetle green), touched on the fine fronds at the end of the feathers with bay or chestnut, which gives the desired sheen. *Shoulders:* Glossy green-black, slightly broken with bay or chestnut in the centre of the feather or shaft. *Wings:* Bows, similar to shoulders; secondaries, glossy green-black on the inner web, and bay or chestnut on the outer web, a triangular patch of bay or chestnut alone showing when the wing is closed; primaries, deep black, except for about 2½ inches of a narrow lacing on the outer web of a light chestnut. *Tail coverts* (or furnishing): Glossy green-black, slightly broken with bay or chestnut in the base of the shaft.

Plumage of the Hen.—The ground colour is chestnut brown, nut brown, or mahogany brown. *Head, Hackle, and Throat:* Glossy green-black, or

beetle green. The pointed *Hackle* that lies under the neck feathers is glossy green-black, with a bay or chestnut centre mark. The *Breast*, commencing on the lower part of the throat and expanding into double lacing on the swell of the breast, is of a rich bay or chestnut, inner or double lacing being most distinct, the *Under-parts* and *Thighs* being marked somewhat similarly, and running off into a mixture of indistinct markings under the vent and swell of the thighs. The feathers of the *Shoulders* and *Back* are somewhat smaller, enlarging towards the tail-coverts, and are similarly marked with the double lacing. The markings on the wing-bows and shoulders running down to the waist are the most distinct of all, with the same kind of double lacing; and often in the best specimens there is an additional mark enclosing the base of the shaft of the feather, and running to a point in the second or inner lacing. The *Tail-coverts* are seldom as distinctly marked, but with the same style of marking. The *Primary* or *Flight Feathers* are black, except on the inner frond or web, which are a little coloured or peppered with a light chestnut; the secondaries are black on the inner web, while the outer web is in keeping with the general ground colour, and edged with a delicate lacing of glossy green-black. The *Wing-coverts*, which form the bar, are laced like those of the body, and often a little peppered. The lacing mentioned should be metallic glossy green-black or beetle green, and should look as if embossed or raised.

SCALE OF POINTS.

Shape and colour of body and thighs, 10; back, 8; breast, 8; wings, 8	34	Size	10
		Condition	8
Head: skull, 3; eyes, 3; brows, 3; beak, 2; wattles, 2; lobes, 2; comb, 2	17	Shape and colour of tail	8
		Shape and colour of legs and feet	8
Carriage	12	Neck	3
			100

Serious defects: Crooked back, beak, or legs; wry or squirrel tail; in-knees or bow legs; red hackle; flat side; single or Malay comb; and in the hen, in addition, too light, too dark, or mealy ground colour; or defective markings.

(It may be remarked that a scale of points is not given in the annual report for 1909 issued by the Indian Game Club, and that which appears above is a copy of the one published in the former—third—edition of the "Poultry Club Standards."—W. W. B.)

LA BRESSE (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Rather thin, and of medium length. *Beak:* Strong and fairly long. *Eyes:* Bold. *Comb:* Single, of medium size, straight, and erect, the back part following the curve of the neck, deeply and evenly serrated, of fine texture, and free from thumb-marks and side sprigs. *Face:* Smooth and free from feathers. *Ear-lobes:* Well developed and rather pendant. *Wattles:* Of medium length, and rounded at the ends.

Neck.—Fairly short, but covered with long hackles.

Body.—Fairly broad, square, and compact. *Breast:* Well rounded. *Back:* Moderately short, broad at shoulders, and tapered to the tail. *Wings:* Of moderate length, and carried close to the body.

Tail.—Of medium length, and carried well back.

Legs and Feet.—*Legs:* Of medium length, the shanks fine and free from feathering. *Toes:* Four on each foot, straight, and well spread.

Carriage.—Active and graceful.

Weight.—6 lb.

HEN.

Except that the *Comb* falls gracefully over to either side of the face, the

general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—5 lb.

COLOUR.

THE BLACK.

Beak: Dark blue or dark slate, the former preferred. *Eyes:* Black, or as dark as possible. *Comb and Wattles:* Bright red. *Face:* Sooty, especially dark around the eyes. *Lobes:* White, or white sanded with red, the former preferred. *Legs and Feet:* The same as the beak.

Plumage.—Black, with a bright green lustre.

THE WHITE.

Head points: As in the Black. *Legs and Feet:* Dark blue.

Plumage.—Pure white, straw tinge objectionable.

SCALE OF POINTS.

Type	40	Legs and feet	15
Head: lobes, 10; eyes, 10; comb, 5	25	.	—
Colour	20		100

Serious defects: Comb too heavy or with side sprigs; red eyes; black, white, or yellow shanks and toes; straw-coloured or other than black or white feathers; high tail carriage; any deformity. (NOTE.—Red lobes, although objectionable, cannot be considered as serious defects at present.—W. W. B.)

LANGSHANS (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Fine. *Beak:* Fairly long and slightly curved. *Eyes:* Large. *Comb:* Single, medium size, straight and upright, of good substance and fine texture, and evenly serrated (five or six spikes). *Face:* Of fine texture, and smooth. *Ear-lobes:* Of medium size, pendant, and inclined to fold. *Wattles:* Of medium size and fine texture, neatly rounded.

Neck.—Fairly long, broad at base, and covered with full hackle.

Body.—Full and deep breast; long and broad back, horizontal when in normal attitude (the saddle abundantly furnished with hackle, close fitting, and not too long); broad shoulders; and large, closely carried wings, though not "clipped up" or "pinched in."

Tail.—Full and flowing, spread at the base, fairly high, but with no approach to "squirrel" carriage, furnished with abundant side-hangers and two long sickles, each tapering to a point.

Legs and Feet.—*Legs:* Thighs not too long, but well developed and wide apart, and covered with closely fitting feathers, especially round the hocks; shanks rather long, strong, but not coarse boned, and having an even fringe of feathers (not too heavy) on the outer sides. *Toes:* Four on each foot, long, straight, and well spread, the outer toe (and that alone) being slightly feathered.

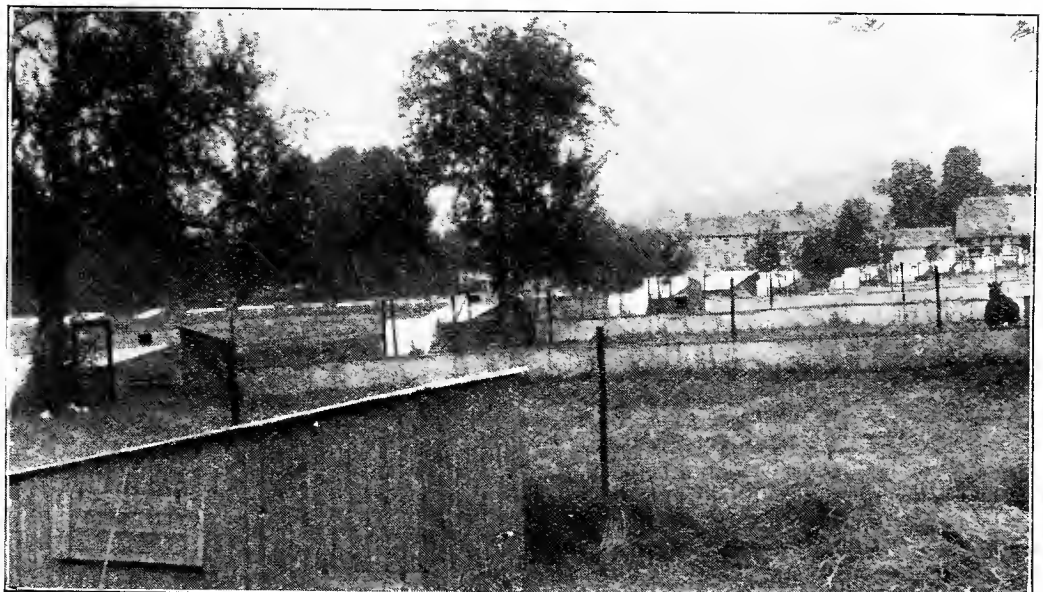
Carriage.—Graceful, upright, and alert, strong legged, and with the bearing of an active bird.

Weight.—10 lb.; cockerel, 8 lb.

Plumage.—Close and smooth, but not so hard as in the Game fowl, and with very little fluff until after the first moult.

HEN.

With the exception that the *Tail* is not carried so high the general



PART OF MR. MURRAY LINDNER'S BREEDING PENS, WITH HAM COURT IN THE BACKGROUND.

characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences. It might be added that the hen's shape should be "free from lumpy or squat appearance," and that her back should be devoid of cushion, or fulness at saddle.

COLOUR.

THE BLACK.

Beak: Dark horn to black. *Eyes:* Dark brown to black—the darker the better. *Comb, Face, Wattles, and Ear-lobes:* Brilliant red. *Legs and Feet:* Dark grey, with black scales in front and down the toes (losing their density after the first moult), showing pink between the scales and on the skin between the toes, especially down the outer side of the shanks. *Toe-nails:* White. *Under-foot:* Pink-white. *Skin:* Of body and thighs, white and transparent.

Plumage.—Black, with brilliant beetle green sheen.

THE BLUE.

Beak: Medium to dark horn. *Eyes:* Dark hazel to black—the darker the better. *Comb, Face, Wattles, Ear-lobes, Legs and Feet, Toe-nails, Under-foot, and Skin:* As in the Black.

Plumage of the Cock.—*Hackles, Back, Tail, Sickles, Side Hangers, and Wing-bow:* Rich deep slate, the darker the better, with brilliant purple sheen. *Remainder of Plumage:* Clear slate blue, each feather distinctly laced (edged) with the same dark shade as the back, the contrast between the delicate ground and the dark lacing to be well defined.

Plumage of the Hen.—Clear slate blue ground, each feather (except on the head and upper part of the neck) distinctly laced (edged) with dark slate, the contrast between the ground and lacing to be well defined. The small feathers on the head and upper part of the neck, a rich dark slate.

THE WHITE.

Beak: White, with a pink shade near the lower edges. *Eyes, Comb, Face, Wattles, Ear-lobes, Toe-nails, Under-foot, and Skin:* As in the Black. *Legs and Feet:* Light grey or slate, showing pink between the scales and on the skin between the toes.

SCALE OF DEFECTS.

	Deduct up to		*Deduct up to*
In head properties	15	Want of condition	10
General coarseness	15	Bad carriage and shape	10
In legs and feet	10	Crooked breast	10
In plumage	10		—
Too much fluff	10		100
Want of size	10		

Serious defects: Yellow skin; yellow base of beak; yellow or orange-coloured eye; yellow around the eye; yellow on shanks or under-foot; legs other colour than standard; shanks not feathered; more than four toes; permanent white in face or ear-lobes; comb other than single, wry tail; "squirrel" tail; coloured feathers other than mentioned in the standard.

Faults: Absence of pink between toes; feathering on middle toes; outer toes not feathered; too scantily or too heavily feathered shanks or outer toes; twisted toes; short shanks; crooked breast; twisted or falling over (lopped) comb; side sprigs on comb; general coarseness; too much fluff; purple sheen (in Blacks); yellow shade or sheen (in Whites).

LEGHORNS (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Fine. *Beak:* Stout, the point clear of the front of the comb. *Comb:* (*a*) Single, or, in Blacks only, (*b*) rose; (*a*) of fine texture, large but not overgrown, perfectly straight and erect, deeply and evenly serrated, the spikes broadening at the base; extending well beyond the back of the head and following, without touching, the line of the hackle; free from thumb marks and side sprigs; (*b*) moderately large, firm, not overgrown so as to obstruct the sight, the leader extending straight out from the head, and not following the line of the tackle. *Face:* Smooth and of fine texture, and free from wrinkles or folds. *Wattles:* Long, thin, and of fine texture. *Ear-lobes:* Well developed and rather pendant, equally matched in size and shape, smooth, open, and free from folds.

Neck.—Long, and well furnished with hackle feathers.

Body.—Wedge-shaped, wide at the shoulders, and narrowing to the root of the tail. *Breast:* Round and prominent, the breast-bone straight. *Back:* Slightly rounded and sloping to the tail. *Wings:* Large, but tightly carried.

Tail.—Moderately full, carried at an angle of 40 to 45 degrees.

Legs and Feet.—*Legs:* Fairly long, the shanks free from feathers. *Toes:* Four, long, straight, and well spread.

Carriage.—Very alert and sprightly.

Weight.—6 lb. to 8 lb.

HEN.

With the exception that the *Comb* in the Single-combed varieties falls gracefully over to either side of the face, and the *Tail* is carried closely and not at such a high angle as the cock's, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—5 lb. to 7 lb.

COLOUR.

THE BLACK.

Beak: Yellow or horn. *Eyes:* Red. *Comb, Face and Wattles:* Bright red. *Ear-lobes:* White or cream, the former preferred. *Legs and Feet:* Yellow or orange; toe-nails, yellow.

Plumage.—Rich blue-black, perfectly free from feathers of any other colour.

NOTE.—The Rose-combed Black is the same colour as the Single-combed variety in all sections.

THE BLUE.

Head points, Legs and Feet: As in the Black.

Plumage.—One even medium shade of blue from head to tail, a little darker blue allowed in the hackles and saddle of the cock, but the more even the colour the better.

THE BROWN.

Beak, Eyes, Comb, Face, and Wattles: As in the Black. *Ear-lobes:* Pure opaque white, resembling white kid. *Legs and Feet:* Brilliant yellow, toe-nails to match beak.

Plumage of the Cock.—*Neck-hackle:* Rich orange red, striped with black, crimson red at the front of the hackle below the wattles. *Back and Shoulder-coverts:* Deep crimson, red, or maroon. *Wings:* Bow, same as back; coverts, steel blue, with green reflections forming a broad bar across the wing;

primaries, brown; secondaries, deep bay on the outer web, which is all that appears when the wing is closed, and black on the inner web. *Saddle:* Rich orange red, with or without a few black stripes. *Breast and Under-parts:* Glossy black, quite free from brown splashes. *Tail:* Black, glossed with green; any white in tail is very objectionable. *Tail-coverts:* Black, edged with brown.

Plumage of the Hen.—*Hackle:* Rich golden yellow, broadly striped with black. *Breast:* Salmon red, running into maroon around the head and wattles, and ash grey at the thighs. *Body colour:* Rich brown, very closely and evenly pencilled with black, the feathers free from light shafts, and the wings free from any red tinge. *Tail:* Black, outer feathers pencilled with brown.

THE BUFF.

Head points and Legs: As in the Black. *Toe-nails:* White.

Plumage.—Any shade of buff from lemon to dark, at the one extreme avoiding washiness and at the other a red tinge, the colour to be perfectly uniform, allowing for greater lustre on the hackle and saddle feathers, and of the wing-bow in the case of the cock only.

THE CUCKOO.

Head points, Legs and Feet: As in the Brown.

Plumage.—Light blue-grey ground, each feather barred across with bands of dark grey or blue, the markings to be uniform, and the colours shading into each other so that no distinct line or separation of the colours is perceptible.

THE DUCKWING.

Head points, Legs and Feet: As in the Brown.

Plumage of the Gold Cock.—*Neck-hackle:* A rather light yellow or straw colour, a few shades deeper at the front below the wattles, the longer feathers striped with black. *Back:* Deep rich gold. *Saddle and Saddle-hackle:* Deep gold, shading in hackle to pale gold. *Shoulder-coverts:* Bright gold or orange, solid colour (an admixture of lighter feathers is very objectionable). *Wings:* Bow, the same as the shoulder-coverts; coverts, metallic blue (blue violet), forming an even bar across the wing, which should be sharp, cleanly cut, and not too broad; primaries, black, with white edging on the outer web; secondaries, white outer web, which is all that is seen when the wing is closed, forming the wing-bay, black inner web and end of feather. *Breast:* Black, with green lustre. *Under-parts:* Black. *Tail:* Black, richly glossed with green, grey fluff at the base.

Plumage of the Gold Hen.—*Head:* Grey (a brown cap very objectionable). *Hackle:* White, each feather sharply striped with black or dark grey (a slight tinge of yellow in the ground colour admitted). *Breast and Under-colour:* Bright salmon red (this point is very important), darker on throat, and shaded off to ash grey or fawn colour on the under-parts. *Back, Wings, Sides, and Saddle:* Dark slate grey, finely pencilled with darker grey or black. *Tail:* Grey, slightly darker than the body colour, inside feathers a dull black or dark grey.

Plumage of the Silver Cock.—*Neck-hackle:* Silver white, the long feathers striped with black. *Back, Saddle, and Hackle:* Silver white. *Shoulders and Wing-bow;* Silver white, as solid as possible (any admixture of red or rusty feathers very objectionable). *Wings:* Coverts, metallic blue (blue violet), forming an even bar across the wing, which should be sharp, clearly cut, and not too broad; primaries, black with white edging on outer part; secondaries, white outer edge, which is all that is visible when the wing is closed, forming the wing-bay, black inner web and end of feathers. *Thighs and Under-parts:* Black. *Tail:* Black, richly glossed with green, grey fluff at the base.

Plumage of the Silver Hen.—*Head:* Silver white. *Hackle:* Silver white, each feather sharply striped with black or dark grey. *Breast and Under-parts:* Light salmon or fawn, darker on throat and shaded off to ash grey on the under-parts. *Back, Wings, Sides, and Saddle:* Clear delicate silver grey or French

grey, without any shade of red or brown, finely pencilled with dark grey or black (purity of colour very important). *Tail:* Grey, slightly darker than the body colour, with the inside feathers a dull black or dark grey.

THE PILE.

Head points: As in the Brown. *Legs, Feet, and Toe-nails:* Yellow.

Plumage of the Cock.—*Neck-hackle:* Bright orange. *Back and Saddle:* Rich maroon. *Shoulders:* Dark red. *Wings:* Bows, dark red; secondaries, dark chestnut outer web, which is all that is seen when the wing is closed, and white inner web. *Remainder of Plumage:* White.

Plumage of the Hen.—*Neck-hackle:* White, tinged with gold. *Breast:* Deep salmon red shading into white thighs. *Remainder of Plumage:* White.

THE WHITE.

Head points, Legs and Feet: As in the Black.

Plumage.—Pure white, straw tinge to be avoided.

SCALE OF POINTS.

Colour	25	Condition	10
Ear-lobes	15	Legs	8
Size	15		—
Shape	15		100
Comb	12		

Serious defects: Cock's comb twisted or falling to either side, or hen's erect; red ear-lobes; any white in face; legs other than yellow or orange; any bodily deformity; and in Rose-combed Blacks, comb other than rose, or such as to obstruct the sight.

MALAYS (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Very broad, with deep-set eyes and beetle or overhanging eyebrows, giving a cruel and morose expression. *Beak:* Short and strong, and well curved. The profile of the skull and beak approaches the shape of a segment of a circle. *Eyes:* Deep-set. *Comb:* Shaped like a half walnut, small, set well forward, and as free as possible from irregularities. *Face:* Smooth. *Ear-lobes and Wattles:* Small.

Neck.—Long and upright, thick through from back of skull to gullet, the bare skin of the throat running some way down the neck, hackle full at the base of the skull, elsewhere very short and scanty.

Body.—Very wide and square at shoulders, tapering to tail, the wing butts and shoulders prominent and carried well up, and usually bare of feathers at the point. *Back:* Short, very sloping, and of convex outline, the saddle narrow and drooping. *Breast:* Deep and full, generally bare of feathers at the breast-bone, and the chest inclined to flatness. *Wings:* Of medium length, large, and strong, carried high and closely to the sides; the feathers should be hard, short, and scanty. All the lines of the bird should present a hard, clean, cut-up appearance.

Tail.—Of moderate length, drooping, not whipped, the sickles narrow and only slightly curved, and the side-hangers rather full, also slightly curved and finishing to a point. The outline of the neck-hackle, back, and upper tail feathers should form a succession of curves at nearly equal angles.

Legs and Feet.—*Legs;* Set well on the front of the body, long and muscular thighs, with very little feather on them, and leaving the hock perfectly exposed, shanks long and beautifully scaled, flat at hocks, and gradually rounding to setting on of spur, a downward curve in spur to be preferred. *Toes:* Four on each foot, long and straight and with powerful talons, the back toe lying close to the ground.

Carriage.—Very erect, high in front and drooping behind, standing straight at the hock, fierce and gaunt.

Weight.—11 lb.

Plumage.—Very close, scanty, narrow, and lustrous.

Handling.—Extremely firm and muscular.

HEN.

Except that the *Tail* is rather short and square, neither whipped nor fanned, carried slightly above the horizontal line, and well played, as if flexible at the joint or insertion, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—9 lb.

COLOUR.

Beak: Yellow or horn, yellow preferred. *Eyes:* Pearl, yellow, or daw. *Comb, Face, Throat, Wattles, and Ear-lobes:* Brilliant red. *Legs and Feet:* Very rich yellow.

THE PILE.

Plumage of the Cock.—*Hackle, Saddle, and Back:* Rich red. *Wings:* Bow, rich red; secondaries, bright bay; flights, white on inner web, with red outside edging. *Remainder of Plumage:* White.

Plumage of the Hen.—*Hackle:* Gold. *Breast:* Salmon. *Remainder of Plumage:* White.

THE RED.

Plumage of the Cock.—*Hackle, Saddle, and Back:* Rich red. *Wings:* Bow, rich red; secondaries, bright bay; flights, black on inner web with red outside edging. *Remainder of Plumage:* Lustrous green-black.

Plumage of the Hen.—Any shade of cinnamon or wheaten, with preferably dark purple hackle. Partridge marked and Clay are also allowable. The Red variety should be quite free from white feathers in wings and tail.

THE SPANGLED.

Plumage.—Somewhat similar to the Red in ground, except the *Breast, Under-part, Thighs, and Tail* of the cock, which should have an admixture of red and white. The hen's colour should be rich, and boldly marked with black and white. Each feather in both sexes should somewhat resemble tortoise-shell in the blending of its red or chestnut with black, and should have a bold white tip to it; even the long feathers of the wings and tail should be as tri-coloured as possible.

THE WHITE.

Plumage.—Pure white, free from any yellow or black, or ruddy feathers.

NOTE.—The foregoing are the principal varieties, and others are not sufficiently numerous to warrant description. The above colours and markings are ideal, but in Malays not so much value is attached to these points as to type and quality.

SCALE OF POINTS.

Head: skull, 5; brow and expression, 5; beak, 5; comb, 3	18	Feather: short, narrow, and hard	8
Shape (curves, etc.), strong shoulders and wing butts ..	15	Condition	8
Length of limb and neck, and stiltiness	15	Tail	5
Size and bone	9	Colour	5
Carriage and outline	9	Eyes	4
		Feet	4
			100

Serious defects: Any clear evidence of an alien cross; diminutive size; single or pea comb; bow legs; knock knees; very bad feet; in short any defect that in the opinion of the judge is not sufficiently penalised by the deduction of the maximum number of points allowed in the above scale.

MALINES (SITTERS).

GENERAL CHARACTERISTIC.

COCK.

Head.—*Skull:* Strong, but not thick. *Beak:* Strong and stout, and of medium length. *Eyes:* Full and intelligent. *Comb:* Single, of medium size, straight and upright, with about five serrations. *Face:* Smooth. *Ear-lobes:* Rather long. *Wattles:* Of medium length.

Neck.—Strong, not too short, rather thick, and profusely covered with rather short hackle feathers.

Body.—*Breast:* Deep and broad. *Back:* Long, broad, and flat, carried horizontally and not sloping. *Wings:* Rather short and well tucked up.

Tail.—Short, and carried half horizontally.

Legs and Feet.—*Legs:* Fairly long, strong, the shanks and feet feathered to the outer toe, but not heavily feathered. *Toes:* Four on each foot, fairly long, strong, straight, and well spread.

Carriage.—Upright, but not with a sloping back.

Weight.—9 lb. to 10 lb.

HEN.

Except that the *Legs* are rather short, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—7 lb. to 8 lb.

COLOUR.

THE CUCKOO.

Beak: White or horn. *Eyes:* Red or bright orange. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* White.

Plumage.—Blue-white ground, each feather barred across with bands of blue-black, the blue reflection disappearing the second year.

OTHER VARIETIES.

Among other varieties recognised are Black, Ermine, Gilded Black, Gilded Cuckoo, Silvered Black, and White, and the "Turkey-headed" (triple comb) in all colours; but they are not exhibited in sufficient numbers in this country to warrant description.

SCALE OF POINTS.

Type	25	Comb, ear-lobes, and wattles	10
Size and weight	20	Beak and neck	5
Colour and marking	15	Legs and feet	5
Carriage	10		
Breast and back	10		100

Serious defects: Lack of size and weight; back sloping or not flat; squirrel tail; overhanging comb; white ear-lobes; yellow legs; bronze feathers.

MINORCAS (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Long and broad, so as to provide a substantial foundation for the comb. *Beak:* Strong and of moderate length. *Eyes:* Full and bright. *Comb:* Single, fairly large (consistent with the size of the bird), upright and straight, free from any twist, thumb marks, or side sprigs, not extending over the beak, and reaching well to the back of the head and following the line of but not touching the neck-hackle, of moderately rough texture, and with five to seven wedge-shaped spikes. *Face:* Smooth, of fine texture, and as free as possible from feathers or hairs. *Ear-lobes:* Almond shape, fairly large (to harmonise with other points of the head), of kid-like texture, flat but of thick substance, and fitting closely to the head. *Wattles:* Broad and long, and well rounded at the ends.

Neck.—Long and covered with flowing hackle.

Body.—Long, broad shoulders, giving the back a somewhat flat appearance, gradually tapering and sloping to the tail. *Breast:* Full. *Wings:* Moderately long, fitting closely to the sides.

Tail.—Full, abundantly furnished with feather, with broad, long, and well-curved sickles, and carried nicely back.

Legs and Feet.—*Legs:* Strong and moderately long. *Toes:* Four on each foot, long, and well spread.

Carriage.—Upright and graceful.

Weight.—7 lb.

HEN.

Except that the *Comb* droops over to one side of the face and is carried so as not to obstruct the sight, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—6 lb.

COLOUR.

THE BLACK.

Beak: Dark horn. *Eyes:* Dark. *Comb, Face, and Wattles:* Dark blood red. *Ear-lobes:* White. *Legs and Feet:* Black in cockerels and pullets, dark slate in cocks and hens.

Plumage.—Glossy green-black.

THE WHITE.

Beak: White. *Eyes:* Red. *Comb, Face, and Wattles:* Blood red. *Ear-lobes:* White. *Legs and Feet:* Pink-white.

Plumage.—White.

SCALE OF POINTS.

Head: face, 15; comb, 15; lobes, 10	40	Condition	10
Colour: plumage, 10; legs, eyes, and beak, 8	18	Shape	10
Size	15	Breast-bone	7
			100

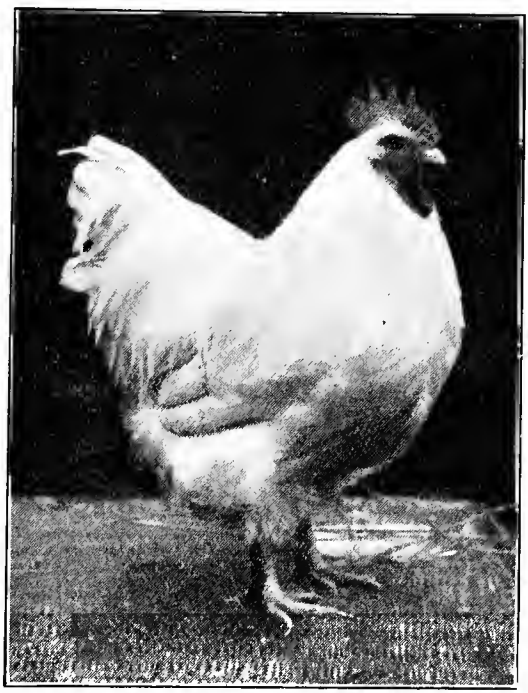
Serious defects: White in face; wry or squirrel tail; feathers on shanks or toes; other than single comb; plumage other than black or white in the several varieties; other than four toes; legs other than black or slate in Blacks or white in Whites.

ORPINGTONS (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Small and neat, and fairly full over the eyes. *Beak:* Strong and nicely curved. *Eyes:* Full and bright. *Comb:* (*a*) Single or (*b*) rose; (*a*) of medium size, erect, evenly serrated, and free from side sprigs; (*b*) small, straight



WHITE ORPINGTON COCKEREL.

1st Crystal Palace, 1912, the property of Mr. Walter Bradley, bred by Mr. Murray Lindner. (See advertisement.)

and firm, full of fine work or small spikes, level on top (not hollow in centre), narrowing behind to a distinct peak lying well down to the head (not sticking up). *Face:* Smooth. *Ear-lobes:* Of medium size and length. *Wattles:* Of medium length, rather oblong, and nicely rounded at the bottom.

Neck.—Of medium length and abundantly covered with long hackle feathers, which should reach well on to the back.

Body.—Deep and broad; wide and slightly rising saddle with full hackle, which with the long neck-hackle give the back a short and somewhat concave

appearance. *Breast:* Broad and well-rounded (not flat), carried forward. *Wings:* Rather small, carried closely to the body, the ends almost hidden by the saddle-hackle.

Tail.—Rather short, compact, flowing and inclined backwards, but by no means in "squirrel" fashion.

Legs and Feet.—*Legs:* Short and strong, the thighs almost hidden by the body feathering. *Toes:* Four on each foot, straight, and well spread.

Carriage.—Erect and graceful.

Weight.—10 lb.

Plumage.—Fairly close but not so hard as in the Game fowl nor so soft, loose, and fluffy as in the Cochin.

Handling.—Firm flesh.

HEN.

The general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences. It is worth noting that the *Cushion* should be small, sufficient to give the back a short and graceful appearance, but not full and round, or "ball" shaped as in the Cochin.

Weight.—8 lb.

COLOUR.

THE BLACK.

Beak: Black. *Eyes:* Black, with dark brown iris. *Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs and Feet:* Black. *Toe-nails, Soles of Feet, and Skin:* White.

Plumage.—Black, with a green sheen.

THE BUFF.

Beak: White or horn. *Eyes:* Red or brown, red preferred. *Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs, Feet, and Skin:* White.

Plumage.—Clear, sound, even buff throughout to skin.

THE CUCKOO.

Beak: White. *Eyes:* Red. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* White, or white mottled with black, white preferred. *Toe-nails and Skin:* White.

Plumage.—Blue-grey (light shade) ground, each feather barred across with blue-black (dark shade), the markings in keeping with the size of the feather.

THE JUBILEE.

Head points, Legs, and Feet: As in the Buff.

Plumage of the Cock.—Ground colour mahogany, of a bright shade, and not dark nor maroon. *Hackles and Back:* Mahogany, with black centre stripe, mahogany shaft, and white tip. *Breast, Thighs, and Fluff:* Mahogany, with black spangle and white tip, the three colours clean and distinct and showing in equal proportions, avoiding a ticked effect on the one hand, and a blotchy effect on the other. *Wings:* Bow, similar to hackles; bar, black; secondaries, mahogany, black, and white; primaries similar, but more white allowed. *Tail:* Sickles white, or black and white, or black, white and mahogany; coverts, black, edged with mahogany and tipped with white.

Plumage of the Hen.—*Neck-hackle:* To match that of the cock. *Body, Thighs, and Fluff:* Mahogany, with black spangles and white tips, similar to the breast of the cock. *Wings:* As body, but with primaries to match those of the cock. *Tail:* As in the cock.

THE SPANGLED.

Beak: Black, white, or slightly mottled. *Eyes:* Red or brown, red preferred. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* Black and white, mottled as evenly as possible. *Toe-nails and Skin:* White.

Plumage of the Cock.—*Hackles:* Black, with white tips. *Back:* Black, slightly ticked with white. *Breast, Thighs, and Fluff:* Black, with white spangles, the two colours showing in equal proportions, avoiding a ticked effect on the one hand, and a blotchy effect on the other. *Wings:* Bow, similar to back; bar, black; secondaries and primaries, black and white, but more white allowed in the primaries or flights. *Tail:* Black and white; the sickles and the coverts black with white tips.

Plumage of the Hen.—*Neck, Wings* (flights only), *and Tail:* Similar to those parts of the cock. *Remainder of Plumage:* The same as the breast of the cock, the effect to be uniform throughout the bird. (NOTE.—In both sexes the black should have a bright gloss (beetle green), and the white should be pure and bright, the two colours distinct and not running into each other.)

THE WHITE.

Beak, Legs and Feet, and Skin: White. *Head points and Eyes:* Red.

Plumage—Pure snow white.

SCALE OF POINTS.

THE BLACK.

Shape: body, 15; breast, 10; saddle, 5	30	Size	10
Head: Comb, 7; skull, 5; face, 5; eyes, 5; beak, 3	25	Tail	5
Plumage and condition	10	Legs and feet	5
Carriage	10	Skin	5
			100

THE BUFF AND THE WHITE.

Colour	25	Legs and feet	10
Type	25	Size	10
Condition	15		
Head	15		100

THE CUCKOO.

Colour and marking	25	Legs and feet	10
Shape	20	Condition	10
Size	20	Skin	5
Head	10		100

THE JUBILEE AND THE SPANGLED.

Colour and marking	35	Head	10
Size and shape	30	Legs and feet	10
Condition	15		100

Serious defects: Feather on shanks or feet; white in ear-lobes; long legs; side spikes on comb; any deformity; yellow skin or yellow in shanks, or feet of Blacks; any yellow on shanks or feet of Cuckoos; other than black and white coloured feathers in Spangled; any yellow in whites.

PLYMOUTH ROCKS (SITTERS)

GENERAL CHARACTERISTICS

COCK.

Head.—*Skull:* Strong, but not thick. *Beak:* Short and stout. *Eyes:* Large and bright. *Comb:* Single, of medium size, straight and erect, with well-defined serrations, and free from side sprigs. *Face:* Smooth. *Ear-lobes:* Of fine texture, well developed and pendant. *Wattles:* To correspond with size of comb, and moderately rounded.

Neck.—Of medium length, thick, and profusely covered with hackle feathers, which should flow well over the shoulders.

Body.—Large, deep, and compact. *Breast:* Broad and well rounded. *Back:* Broad, of medium length. *Wings:* Medium sized, carried well up, the bows and tips covered by the breast feathers and saddle-hackles.

Tail.—Rather small, rising slightly from the saddle, the sickles and coverts of medium length and nicely curved, the coverts being sufficiently abundant to cover the stiff feathers.

Legs and Feet.—*Legs:* Wide apart, stout, and strong, thighs two to three inches long (from hock to body), with shanks to correspond. *Toes:* Four on each foot, strong, straight, and well spread.

Carriage.—Upright and graceful.

Weight.—10 lb. to 12 lb.

HEN.

The general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—8 lb. to 10 lb.

COLOUR.

Beak: Bright yellow. *Eyes:* Clear, rich bay. *Comb, Face, Ear-lobes, and Wattles:* Bright red. *Legs and Feet:* Bright yellow.

THE BARRED.

Plumage.—Blue-white ground, each feather barred across with bands of black of a beetle green sheen, the markings to be moderately narrow and of equal width, and the colours to be sharply defined and not shading into each other, the barring to continue through the shafts of the feathers and into the fluff and under-colour, and each feather to finish with a black tip.

THE BLACK.

Plumage.—Black, with a beetle green sheen.

THE BUFF.

Plumage.—Clear, sound, even buff throughout to skin, any shade from lemon to orange, at the one extreme avoiding washiness and at the other a red tinge.

THE WHITE.

Plumage.—Pure white; straw tinge to be avoided.

SCALE OF POINTS.

THE BUFF.

Colour	35	Head	10
Type	20	Legs and feet	10
Size	15		
Condition	10		100

OTHER VARIETIES.

Colour (including tail in Barred)	10, 30	Condition	10
Type	20	Head	10
Size	20	Legs and feet	10
			100

Serious defects: The slightest fluff or feathers on the shanks or feet; shanks other than yellow; white ear-lobes; black, red, or white feathers in the Barred; other than black feathers in the Black; spotted hackle or saddle, mealiness, any black or white in the wings or white in the tail of the Buff; any coloured feathers in the White.

POLISH (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Large, with a decidedly pronounced protuberance on top, and crested. *Crest:* Large and full, circular on top, and free from any split or parting, high and smooth front, compact in the centre, falling evenly with long, untwisted or reverse-faced feathers far down the nape of the neck, and composed of feathers similar to those of the hackles. *Beak:* Of medium length, and having large nostrils rising above the curved line of the beak. *Eyes:* Large and full. *Comb:* If any (preference should be given to Polish, minus a comb), of the horn type, and very small. *Face:* Smooth, and without muffling in the White-crested varieties, and completely covered by muffling in the others. *Muffling:* Large, full, and compact, fitting around to the back of the eyes and almost hiding the face. *Ear-lobes:* Very small and round, but quite invisible in the muffled varieties. *Wattles:* Rather large and long in the White crested varieties; the others are minus wattles.

Neck.—Long, and with abundant hackle coming well down on the shoulders.

Body.—*Breast:* Full and round. *Back:* Fairly long and flat, tapering to tail. *Flanks:* Deep. *Shoulders:* Wide. *Wings:* Large, closely carried.

Tail.—Full and neatly spread, and carried somewhat low, not perpendicularly, the sickles and coverts abundant and well curved.

Legs and Feet.—*Legs:* Slender and fairly long, and the shanks free from feathers. *Toes:* Four on each foot, slender, and well spread.

Carriage.—Sprightly and erect.

Weight.—6½ lb.

HEN.

With the exception that the *Crest* is of globular shape, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—5 lb.

COLOUR.

THE CHAMOIS OR WHITE-LACED BUFF.

Beak: Dark blue or horn. *Eyes:* Red. *Comb and Face:* Red. *Ear-lobes:* Blue-white. *Legs and Feet:* Dark blue.

Plumage of the Cock.—Buff ground with white markings. *Crest:* White at the roots and the tips, and as free as possible from whole white feathers. *Muffling:* Mottled or laced, not solid buff. *Hackle:* Tipped. *Wings:* Bar and secondaries laced, and primaries tipped. *Tail, Sickles, and Coverts:* Laced.

Plumage of the Hen.—Except that the wing primaries are tipped, the colours and markings, including the crest, are buff ground and white lacing.

THE GOLD.

Head points, Legs and Feet: As in the Chamois.

Plumage of the Cock.—Golden bay ground, with black markings. *Crest:* Black at the roots and the tips, and as free as possible from whole white feathers. *Muffling:* Mottled or laced, not solid black. *Hackle:* Tipped. *Back and Saddle:* Distinctly laced, or spangled at the tips. *Breast, Thighs, Shoulders, and Wings:* Laced, except primaries, which are tipped. *Tail:* Laced, the ends of the sickles being well splashed.

Plumage of the Hen.—Golden bay ground with black lacing, each feather being distinctly marked, and as free as possible from splashes.

THE SILVER.

Head points, Legs and Feet: As in the Chamois.

Plumage.—As in the Gold, substituting silver as the ground.

THE WHITE.

Beak: Dark blue. *Eyes, Comb, and Face:* Red. *Ear-lobes:* White. *Legs and Feet:* Dark blue.

Plumage.—Pure white.

THE WHITE-CRESTED BLACK.

Head points: As in the White. *Legs and Feet:* Dark blue or almost black.

Plumage.—*Crest:* Snow white. *Remainder of Plumage:* Rich metallic black.

THE WHITE-CRESTED BLUE.

Head points, Legs and Feet: As in the White-Crested Black.

Plumage.—*Crest:* Snow white. *Remainder of Plumage:* Solid dark blue.

SCALE OF POINTS.

WHITE-CRESTED VARIETIES.

Head: crest, 30; comb and wattles, 15	45	Type	5
Colour	30	Size	5
Condition	15		100

OTHER VARIETIES.

Head: crest, 30; muffling, 10; comb and wattles, 5	45	Size	10
Colour and markings	25	Condition	10
Type	10		100

Serious defects: Split or twisted crest; other than horn comb; absence of

muffling in Chamois, Gold, Silver, and White varieties; foul-coloured plumage; legs other than blue or slate; other than four toes on each foot; wry tail; any deformity.

RHODE ISLAND REDS.

DISQUALIFICATIONS.

Feather or down on shanks or feet, or unmistakable indications of a feather having been plucked from the same.

Badly lopped combs; side sprig or sprigs on the single comb.

More or less than four toes on either foot.

Entire absence of main tail feathers.

Two absolutely white (so-called wall or fish) eyes.

Wry or squirrel tails.

A feather entirely white that shows in the outer plumage.

An ear-lobe showing more than one-half the surface permanently white. This does not mean the pale ear-lobe, but the enamelled white.

Diseased specimens, crooked backs, deformed beaks, shanks and feet other than yellow or red-horn colour. A pendulous crop shall be cut hard.

Under all disqualifying clauses the specimen shall have the benefit of the doubt.

STANDARD WEIGHT.

Cock	8½ lb.	Hen	6½ lb.
Cockerel	7½ lb.	Pullet	5 lb.

Apparent vigour is to be regarded with the consideration of shape. This being a utility breed, ruggedness is of vital importance.

Where the word "carriage" is used, is meant such a position as the bird assumes when in the upright posture and in a state of reasonable repose.

SHAPE OF MALE.

Head.—*Skull:* Of medium size and breadth, carried in a horizontal position and slightly forward. *Beak:* Medium length and regular curved. *Eyes:* Sight perfect, and unobstructed by breadth of head or comb. *Comb:* Single, medium in size, set firmly upon the head, perfectly straight and upright, with five even and well defined serrations, those in front and rear smaller than those in the centre, of considerable breadth where it is fixed to the head. Rose, low, firm on the head, top oval in shape, and service covered with small points, terminating in a small spike at the rear. The comb to conform to the general curve of the head. *Wattles:* Medium and equal in length, moderately rounded. *Ear-lobes:* Fairly well developed. Symmetry of proportion in head adjuncts is to be considered.

Neck.—Of medium length and carried slightly forward. It is covered with abundant hackle, flowing over the shoulders, but not too loosely feathered.

Back.—Broad, long, and in the main nearly horizontal; this horizontal effect being modified by slightly rising curves at hackle and lesser tail coverts. Saddle feathers of medium length and abundant.

Breast.—Broad, deep, and carried in a line nearly perpendicular to the base of the beak; at least it should not be carried anterior.

Body.—Deep, broad, and long, keel-bone long, straight, and extending well forward and back, giving the body an oblong look.

Fluff.—Moderately full, but feathers carried fairly close to the body; not a Cochin fluff.

Wings.—Of good size, well folded, and the flights carried horizontally.

Tail.—Of medium length, quite well spread, carried fairly well back,

increasing the apparent length of the bird. Sickles of medium length, passing a little beyond the main tail feathers. Lesser sickles and tail coverts of medium length and fairly abundant.

Legs.—Thighs large, of medium length, and well covered with soft feathers. Shanks of medium length, well rounded and smooth.

Toes.—Straight, strong, well spread, and of medium length.

COLOUR OF MALE.

Head.—*Beak:* Red horn colour or yellow. *Eyes:* Red. *Face:* Bright red. *Combs, Wattles and Ear-lobes:* Bright red.

Neck.—Red, harmonizing with back and breast.

Wings.—Primaries, lower web black, upper web red; secondaries, lower web red, upper web black; flight coverts, black; wing bows and wing coverts, red.

Tail.—Main tail feathers and sickle feathers black or greenish black. Tail coverts mainly black, but may become russet or red as they approach the saddle.

Shank and Toes.—Yellow or red horn colour. A line of red pigment down the sides of shanks is desirable.

Plumage.—General surface rich brilliant red, except where black is specified. Free from shafting, mealy appearance, or brassy effect. Depth of colour (red) is slightly accentuated on wing bows and back, but the least contrast between these parts and the hackle or breast the better; a harmonious blending is what is desired. The bird should be so brilliant in lustre as to have a glossed appearance. The undercolour and quill of the feather should be red or salmon. With the saddle parted showing the undercolour at the base of the tail, the appearance should be red or salmon, not whitish or smoky. Black or white in the undercolour of any section is undesirable. Other things being equal, the specimen having the richest undercolour shall receive the award.

SHAPE OF FEMALE.

Head.—*Skull:* Of medium size and breadth, carried in a horizontal position and slightly forward. *Beak:* Medium length and slightly curved. *Eyes:* Sight perfect and unobstructed by breadth of head. *Comb:* Single, medium in size, set firmly upon the head, perfectly straight and upright, with five even and well defined serrations. Rose, low, firm on head, much smaller than that of the male, and in proportion to its length, narrower. Covered with small points and terminating in a small short spike to the rear. *Wattles:* Medium and equal in length, moderately rounded. *Ear-lobes:* Fairly well developed. Symmetry of proportion in head adjuncts to be considered.

Neck.—Of medium length and carried slightly forward. Hackle sufficient, but not too coarse in feather.

Back.—Long, in the main nearly horizontal. In the completely matured hen it would be described as broad, whereas in the pullet not yet well matured, it would look somewhat narrow in proportion to the length of her body. The curve from the horizontal back to the hackle or tail should be moderate and gradual.

Breast.—Deep, broad, and carried in a line nearly perpendicular to the base of the beak; at least not anterior to that line.

Body.—Deep, broad, and long, keel-bone long and straight, giving the body an oblong look.

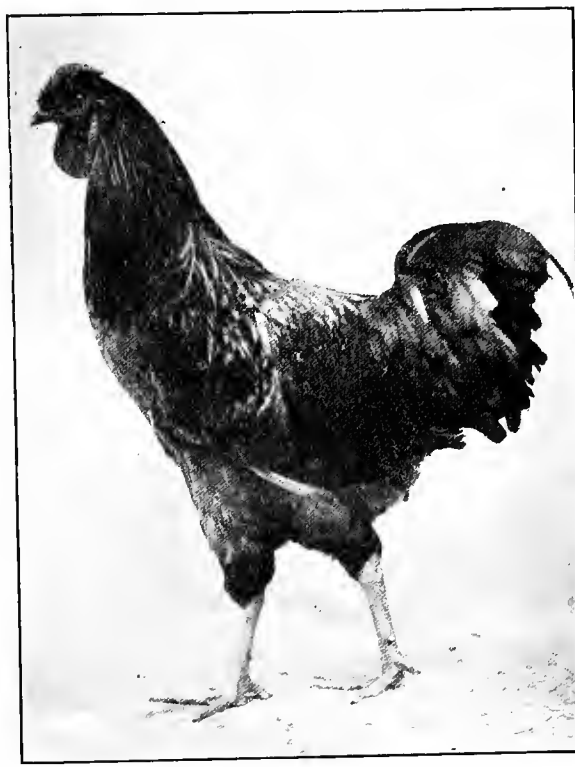
Fluff.—Moderately full, but not too loose (Cochin) in feathering.

Wings.—Of good size, well folded, and the flights carried horizontally.

Tail.—A little shorter than medium, quite well spread. The tail should

form no apparent angle with the back, neither must it be met by a high rising cushion.

Legs.—Thighs, of medium length and well covered with soft feathers. Shanks, of medium length, well rounded and smooth. Toes straight, strong, well spread, and of medium length.



SWANK JACK.

Rosecomb Rhode Island Red Cockerel. Owner, Mrs. Cooper.
(See advertisement.)

COLOUR OF FEMALE.

Head.—*Beak:* Red horn colour or yellow. *Eyes:* Red. *Face:* Bright red. *Comb, Wattle and Ear-lobes:* Bright red.

Neck.—Red. The tips of the lower hackle feathers should have a black ticking, not a heavy lacing.

Wings.—Primaries, lower web black, upper web red; secondaries, lower web red, upper web black; flight coverts, black; wing bow and wing coverts, red.

Tail.—Black, or greenish black.

Shanks and Toes.—Rich yellow or red horn colour.

Plumage.—General surface colour lighter and more even than in the male, free from shafting or mealy appearance. Except where black is specified the colour is a rich even shade of bright red, not as brilliant in lustre as the male. The undercolour and quills of the feathers should be red or salmon. Black or White in the undercolour of any section is undesirable. Other things being equal, the specimen having the richest undercolour shall receive the award.

SCALE OF POINTS FOR JUDGING.

Colour	25	Legs	7
Shape	30	Size	10
Head and Comb	10	Condition	10
Eye colour	8		
		A perfect bird to count	100

TO JUDGES.

Pullets with clear neck hackles, *i.e.* an entire absence of black ticking in the neck hackle, should not be debarred from competition.

SCOTCH GREYS (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Long and fine. *Beak:* Strong and well curved. *Eyes:* Large and clear. *Comb:* Single, of medium size and fine texture, straight and upright, the back following the line of the skull, and with well defined serrations. *Face:* Of fine texture. *Ear-lobes:* Of medium size and fine texture. *Wattles:* Of medium length, and well rounded at the bottom.

Neck.—Moderately long, finely tapered, and with profuse hackle flowing on the shoulders and back.

Body.—Of medium length, and compact. *Breast:* Deep and full, carried forward and upwards. *Back:* Broad and comparatively short. *Wings:* Medium sized, well tucked, and with the bow and tip covered by the neck-hackle and saddle feathers.

Tail.—Of medium length, carried well up (but not squirrel fashion), and with flowing sickles.

Legs and Feet.—*Legs:* Thighs long and strong and wide apart, but not quite so prominent as those of the Game fowl; shanks strong and rather long. *Toes:* Four on each foot, stout and strong, straight, and well spread.

Carriage.—Erect and lively.

Weight.—7 lb. to 8 lb.

Handling.—Firm, and almost similar to that of the Game fowl.

HEN.

Except that the *Comb* may fall slightly over, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—5½ lb. to 6½ lb.

COLOUR.

Beak: White, or white streaked with black. *Eyes:* Red. *Comb, Face, Wattles and Ear-lobes:* Bright red. *Legs and Feet:* White, or white mottled with black, but not sooty.

Plumage of the Cock.—Cuckoo feathered; ground colour of body, thighs and wing feathers blue-white, and that of the neck-hackle, saddle and tail feathers varying from blue-white to light grey; barring, black, with a metallic lustre. The marking of the body, thighs and wing feathers should be straight across, but that of the neck-hackle, saddle and tail may be slightly angled or V-shaped. The alternating bands of black and white should be of equal width, and proportioned to the size of the feather. The bird should "read" throughout—*i.e.* the shade should be the same from head to tail. The plumage should be free from red, black, white or yellow feathers, and the hackle, saddle and tail should be distinctly and evenly barred, while the markings all over should be rather small, even and sharply defined.

Plumage of the Hen.—This should be almost similar to that of the cock, the only difference being that the markings are rather larger, and produce an appearance somewhat resembling shepherd's tartan.

SCALE OF POINTS.

Colour and Markings: Of hackle, 10; back, 10; tail, 10; wings and across shoulders, 10; breast and thighs, 10	50	Head	10
Size	15	Condition	10
Type	10	Legs and feet	5
			100

Serious defects: Any bodily deformity; any distinct characteristic of any other breed not applicable to the Scotch Grey.

SILKIES (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Short and neat, and crested. *Crest:* As upright as the comb will permit, soft and full, and not showing any hard feathers, having half a dozen soft, silky feathers streaming gracefully backward from the lower and back part of the crest to a length of about 1½ inches. *Beak:* Short, and stout at the base. *Eyes:* Brilliant, and not too prominent. *Comb:* An almost circular cushion of flesh, with a number of very small prominences over it, and having a slight indentation or furrow transversely across the middle. *Face:* Smooth. *Ear-lobes:* More oval than round. *Wattles:* Nearly semicircular, not long nor pendant, and concave.

Neck.—Short or of medium length, broad and full at the base, and with abundant and flowing hackle.

Body.—Stout looking. *Breast:* Broad and full. *Shoulders:* Stout and square, and fairly covered with the neck-hackle. *Back:* Short, with the saddle rising to the tail. *Stern:* Broad, and abundantly covered with fine fluff. *Wings:* Soft and fluffy at the butts, the ends of the flights ragged and fairly covered with the soft saddle-hackle.

Tail.—Short, very ragged at the ends of the harder feathers of the true tail, and sickles (allowable) if to be seen, not too noticeable nor too hard.

Legs and Feet.—*Legs:* Short, the thighs set wide apart, covered with very abundant fluff, and standing out prominently; the shanks smooth and free from scaliness, and with slight feathering on the outer sides. *Toes:* Five on each foot, the fourth and fifth diverging from one another preferably, and the middle and outer toes feathered, but these feathers, like those on the shanks, not too hard. There should not be vulture hocks, but soft, silky hocks are permissible.

Carriage.—Stylish.

Weight.—3 lb.

Plumage.—Very silky and fluffy, with a profusion of hair-like feathers.

HEN.

Head.—*Crest:* Similar to a powder puff, standing up and out, not inclined backward, nor hanging over the eyes nor split by the comb, and devoid of hard feathers. *Comb:* Small, and hardly noticeable under the front of the crest. *Wattles:* Either absent, or very small and of oval shape.

Neck.—Short.

Body.—Saddle broad, and well cushioned with the silkiest of plumage.

Tail.—Small, nearly smothered by the cushion, the ragged ends alone protruding, and inclined to be of the Cochin type.

Legs.—Especially short, and the under fluff and thigh fluff almost meeting the ground.

In other respects the general characteristics of the hen are similar to those of the cock.

Weight.—2 lb.

COLOUR.

Beak: Slate-blue. *Eyes:* Black. *Comb, Face and Wattles:* Purple black. *Ear-lobes:* Preferably turquoise-blue, the next best colour being purple-black, similar to the comb, face and wattles. *Legs and Feet:* Lead, with the toe-nails blue-white. *Skin:* Deep violet.

Plumage.—Snow white.

SCALE OF POINTS.

Head: Comb, 10; face, 10; eyes and lobes, 10	30	Neck	10
Plumage, texture of	20	Legs	10
Type	20		100
Saddle and hackle	10		

Serious defects: Hard vulture hocks; green beak or legs; green tip to beak; ruddy comb or face; other than black eyes; incorrect colour of plumage or skin; plumage not silky; want of crest; Polish, or split crest; single comb; long back; want of fluff; scaly legs; four toes; featherless shanks and feet; green soles to feet.

SPANISH (NON-SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Long, broad and deep. *Beak:* Long and stout. *Eyes:* Full and open. *Comb:* Single, somewhat small, erect and straight, firmly fixed at the base, rather thin at the edge, fitting closely on the neck at the back, of very smooth texture, and deeply and evenly serrated. *Face:* Long and deep, as large as possible, of very smooth texture, and free from wrinkles, rising well over the eyes, but not so as to interfere with the sight, and joining the ear-lobes and wattles. *Ear-lobes:* Deep and broad, well rounded at the bottom, extending well below the wattles and meeting in front and going well back on each side of the neck, of fine texture and free from folds or creases. *Wattles:* Very long, thin and pendulous.

Neck.—Long and fine, with abundant hackle flowing well on to the shoulders.

Body.—Rather long, fairly broad in front, and tapering to the rear. *Breast:* Full at the neck and gradually decreasing towards the thighs. *Back:* Slanting downwards to the tail. *Wings:* Short, and carried closely to the body.

Tail.—Full, not carried too high, and with the sickles large and well curved.

Legs and Feet.—*Legs:* Rather long and slim. *Toes:* Four on each foot, slender and straight.

Carriage.—Upright, with proud action.

Weight.—7 lb.

Plumage.—Short and close.

HEN.

Except that the *Comb* falls gracefully over to either side of the face, the general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—6 lb.

COLOUR.

Beak: Dark horn. *Eyes:* Black. *Comb and Wattles:* Bright red. *Face and Ear-lobes:* White. *Legs and Feet:* Pale slate.

Plumage.—Black, with a beetle-green sheen, and free of purple bars.

SCALE OF POINTS.

Face and lobes	35	Plumage	10
Comb and wattles	15	Condition	10
Type	15		
Size	15		100

Serious defects: Blue, pink or red in face or lobes; coarse "cauliflower" face or lobes; cock's comb not erect; side sprigs on comb; lobes pointed at the bottom; wry or squirrel tail; black or dark-coloured legs and feet.

SUMATRA GAME (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Small, rather short, and somewhat rounded. *Beak:* Strong, of medium length, and slightly curved. *Eyes:* Large and very bright, with a quick and fearless expression. *Comb:* Pea, low in front, fitting closely to the head, the smaller the better. *Face:* Smooth and of fine texture. *Ear-lobes and Wattles:* As small as possible, and fitting very closely.

Neck.—Rather long, and covered with very long and flowing hackle,

Body.—*Breast:* Broad, full, and rounded, with straight breast-bone. *Back:* Of medium length, broad at the shoulders, and very slightly tapering to tail; saddle hackle very long and flowing. *Stern:* Narrower than shoulders, but firm and compact. *Wings:* Strong, long and large, carried with the fronts slightly raised, the feathers folded very closely together, not carried drooping nor over the back.

Tail.—Long and drooping, with a large quantity of sickles and coverts, rising slightly above the stern and falling streaming behind, nearly to the ground, and the sickle and covert feathers not too broad.

Legs and Feet.—*Legs:* Of strictly medium length, strong, and set well apart, the thighs thick and muscular, the shanks straight and covered with smooth, even scales, not flat nor thin. *Toes:* Four on each foot, long and straight, well spread, the back toe standing well out and flat on the ground, and the nails strong. (NOTE.—There is no objection to two or more spurs on each shank, it being a peculiarity of the breed for this to occur.)

Carriage.—Pheasant-like, straight and upright in front, and with a proud and stately action.
Weight.—5 lb. to 6 lb.
Plumage.—Very full and flowing, but neither soft nor fluffy.
Handling.—Very firm and muscular.

HEN.

The general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.
Weight.—4 lb. to 5 lb.

COLOUR.

Beak: Dark olive or black, olive preferred. *Eyes:* Very dark red, dark brown, or black, dark red preferred. *Comb, Face, Wattles, and Ear-lobes:* Black or very dark red, "gipsy" face preferred. *Legs and Feet:* The same as the beak.
Plumage.—Black, with a beetle-green sheen.

SCALE OF POINTS.

Type and carriage	20	Condition	15
Head: comb, face, lobes and wattles, 10; beak, 5; eyes, 5..	20	Legs and feet	10
Colour	15	Neck	5
Feather, quantity of	15		100

Serious defects: Other than four toes; single or rose comb; dubbing; any deformity.

SUSSEX (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Of medium size. *Beak:* Short and strong, and well curved. *Eyes:* Full and bright. *Comb:* Single, of medium size, upright, evenly serrated, and fitting closely to the head. *Face:* Smooth. *Ear-lobes and Wattles:* Of medium size.
Neck.—Of medium length, and furnished with fairly full hackle.
Body.—Broad, deep and fairly long. *Breast:* Square, and carried well forward with long and deep breast-bone. *Shoulders:* Wide. *Back:* Broad and flat. *Wings:* Carried closely to the body.
Tail.—Of moderate size.
Legs and Feet.—*Legs:* Short and rather wide apart, the thighs stout and the shanks strong and free from feathers. *Toes:* Four on each foot, straight, long, and well spread.
Carriage.—Graceful and erect.
Weight.—9 lb.
Plumage.—Close.

HEN.

The general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.
Weight.—7 lb.

COLOUR.

THE LIGHT.

Beak: White or horn. *Eyes:* Orange. *Comb, Face, Wattles, and Ear-lobes:* Red. *Legs and Feet:* White.
Plumage.—Pure white, with markings as follows: *Neck-hackle:* Striped with black. *Wings:* Black in flights. *Tail:* Black, the cock's coverts slightly tipped with black.

THE RED.

Head points (except *Eyes:* Red or brown), *Legs and Feet:* As in the Light.

Plumage.—Except that the colour is brown (dark or chestnut), this variety is similar to the former. In the cock there is a greater depth of colour on the saddle and wing-bow, which are glossy.

THE SPECKLED.

Head points (except *Eyes:* Orange or brown), *Legs and Feet:* As in the Light.

Plumage of the Cock.—Rich red brown ground, with black and white markings. *Hackles:* Striped with black and tipped with white. *Wings:* Bow, red, or nearly so; primaries, white, or nearly so. *Tail:* Black and white. *Remainder of Plumage:* Brown, white, and black, evenly distributed, and giving a speckled effect.

Plumage of the Hen.—*Wings:* Bow, brown, white, and black; flights, white. *Tail:* Black, white, and brown. *Remainder of Plumage:* Brown, white, and black, evenly distributed and giving a speckled effect.

SCALE OF POINTS.

Size	25	Head	10
Type	20	Condition	10
Colour	20		
Legs and feet	15		100

Serious defects: Rose comb; feather on shanks; other than four toes; wry tail; any deformity.

WYANDOTTES (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Short and broad. *Beak:* Short and well curved. *Eyes:* Of medium size. *Comb:* Rose, firmly and evenly set on the skull, low, square-fronted, and gradually tapering towards the back and terminating in a small but well-defined spike or leader, which should follow the curve of the neck and without any upward tendency, the top oval and covered with small and rounded points, the side outline of the comb being of convex shape, curving to comform to the shape of the skull. *Face:* Smooth, and of fine texture. *Ear-lobes:* Of oblong shape, well developed and smooth. *Wattles:* Of medium length and fine texture, and well rounded.

Neck.—Of medium length, and abundantly covered with hackle.

Body.—Short, deep, and round. *Breast:* Broad and round, with straight keel. *Back:* Broad and short. *Saddle:* Full and broad, and rising with a concave sweep to the tail. *Wings:* Of medium size and well folded. *Sides:* Well rounded. *Fluff:* Full and abundant.

Tail.—Well developed, spread at the base, the true tail feathers carried rather upright, the sickles of medium length.

Legs and Feet.—*Legs:* Of medium length, the thighs well covered with soft and webless feathers, the shanks strong, fine, and well rounded, and free of feather or fluff. *Toes:* Four on each foot, straight, and well spread.

Carriage.—Graceful and well balanced, resembling that of the Brahma.

Weight.—Buff Laced, 7½ lb.; other varieties, 8½ lb.

HEN.

The general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences.

Weight.—Buff Laced, 6½ lb.; other varieties, 7 lb.

COLOUR.

THE BLACK.

Beak: Bright yellow. *Eyes:* Bright bay. *Comb, Wattles, and Ear-lobes:* Bright red. *Legs and Feet:* Bright yellow.

Plumage.—Black, with a beetle-green sheen, the under-colour as dark (black) as possible.

THE BLUE-LACED.

Head points, Legs and Feet: As in the Black.

Plumage of the Cock.—Bay ground with blue markings. *Hackles:* With distinct blue stripe down the centre of each feather, and free from black tips or black round the edging. *Back and Shoulders:* Free from black, or smutty blue. *Wings:* Bar, laced blue, and well defined. *Breast:* With well-defined lacing, free from double or outer, or black or smutty marking, and regular from the throat to the back of the thighs. *Fluff:* Blue powdered with gold. *Tail:* Solid blue, free from black or white.

Plumage of the Hen.—*Neck-hackle and Tail:* As in the cock. *Remainder of Plumage:* As on the cock's breast, the lacing to extend to the back of the thighs into the fluff.

THE BUFF.

Head points, Legs and Feet: As in the Black.

Plumage.—Any shade of buff from lemon to dark, at the one extreme avoiding washiness and at the other a red tinge, the colour to be perfectly uniform, allowing for greater lustre on the hackle and saddle feathers, and the wing-bows in the case of the cock only.

THE BUFF LACED.

Head points (except *Beak:* Yellow, or horn tipped with yellow), *Legs and Feet:* As in the Black.

Plumage of the Cock.—Rich buff with white markings. *Hackles:* With white stripe down the centre of each feather. *Breast and Thighs:* With clear and regular white lacing. *Wings:* Bars laced with pure white, and well defined; secondaries white on the inner web, and rich buff laced and white on the outer web. *Tail, Fluff, and Under-colour:* Pure white.

Plumage of the Hen.—*Neck, Tail, and Fluff:* As in the cock. *Breast, Back, and Wings:* Rich buff with regular white lacing, and the lacing on the cushion may continue into the tail coverts.

THE COLUMBIAN.

Head points (except *Beak:* Yellow or horn), *Legs and Feet:* As in the Black.

Plumage of the Cock.—White, with black markings. *Neck-hackle:* With a distinct black stripe down the centre of each feather, but free from a black outer edging and black tips. *Wings:* Primaries black, or black edged with white; secondaries, black on the inner edge and white on the outer. *Tail:* Glossy green-black, with the coverts either laced or not with white. *Remainder of Plumage:* Pearl white, entirely free from ticking, the under-colour being either slate, blue-white, or white.

Plumage of the Hen.—*Hackle:* Bright, intense black feathers, entirely surrounded with a silver white margin. *Wings, Tail, and Remainder of Plumage:* As in the cock.

THE GOLD LACED.

Head points (except *Beak:* Horn, shading into or tipped with yellow), *Legs and Feet:* As in the Black.

Plumage of the Cock.—Rich golden bay with black markings.

Hackles: With distinct black stripe down the centre of each feather, free from ticks, black outer edging, or black tips. *Back:* Free from black, or from deep maroon. *Breast and Under-parts:* With well-defined jet black lacing, free from double or bay outer lacing, the markings regular from throat to back of thighs, showing green lustre. *Thighs and Fluff:* Black or dark slate, slightly powdered with gold, with clear lacing round hocks and outer side of thighs. *Shoulder Tip:* Laced with black. *Wings:* Bow, rich golden bay; coverts, evenly laced, forming two (at least) well-defined bars; secondaries, black on inner and wide golden stripe on outer web, the edge laced with black; primaries, black on inner web, and broadly laced gold on outer edge. *Tail:* Black, with green lustre. (NOTE.—Brightness and uniformity of colour to be considered of more value than any particular shade.)

Plumage of the Hen.—*Hackles, Thighs, and Fluff:* As in the cock. *Breast, Back, and Wings:* As on the cock's breast, the secondaries and primaries as in the cock. *Tail:* Black, with a green lustre, the coverts black with a rich golden bay centre to each feather. (NOTE.—Brightness and equality of ground, and regularity of lacing throughout, to be of first importance.)

THE PARTRIDGE.

Head points, Legs and Feet: As in the Gold Laced.

Plumage of the Cock.—*Hackles:* Orange or golden red, with paler shade at back, each feather having a glossy black stripe down centre. *Back and Shoulder:* Rich bright red, free from maroon or purple shade. *Wings:* Bars, solid black; secondaries, rich bay on outer web, and black on inner web and end of feather, the rich bay alone showing when the wing is closed. *Breast:* Black, free from ticks. *Fluff:* Solid black. *Tail:* Including sickles and tail coverts, glossy metallic black.

Plumage of the Hen.—*Hackle:* Golden yellow, clearly pencilled. *Breast, Back and Wings:* Light brown ground, free from red or yellow tinge, every feather distinctly and plentifully pencilled with a darker shade, the pencilling uniform throughout, and following the form of the feather; a brick or yellow ground is objectionable. *Fluff:* Brown (free from yellow or red), slightly pencilled; the more pencilling the better. *Tail:* True feathers black, shading to brown at top, which should be well pencilled.

THE SILVER LACED.

Head points, Legs and Feet: As in the Gold Laced.

Plumage.—Except that the ground is silver-white (free from yellow or straw tinge), instead of rich golden bay, the Silver Laced is similar to the Gold Laced. (NOTE.—In the hen, regularity of lacing and quality of colour in all cases must count above any particular breadth of lacing.)

THE SILVER PENCILLED.

Head points, Legs and Feet: As in the Gold Laced.

Plumage.—Except that the ground is silver-white in the cock and steel-grey in the hen, instead of red (of various shades), the Silver Pencilled is similar to the Partridge.

THE WHITE.

Head points, Legs and Feet: As in the Black.

Plumage.—Pure white, free from yellow or straw tinge.

SCALE OF POINTS.

THE BLACK.

Colour: surface, 20; under, 15 ..	35	Legs	10
Type	20	Condition	8
Head: comb, 10; other points, 5	15		—
Size	12		100

THE BLUE LACED.

COCK.		HEN.	
Breast	20	Breast	25
Head: comb, 8; lobes and wattles, 8; other points, 3	19	Back	12
Back and wings	13	Size and condition	12
Tail	13	Head: lobes and wattles, 5; other points, 5	10
Size and condition	12	Wings	10
Fluff	10	Fluff	10
Neck	8	Tail	8
Legs	5	Neck	8
	100	Legs	5
			100

THE BUFF.

Colour	30	Breast	5
Head: comb, 8; ear-lobes and wattles, 8; other points, 5	21	Wings	5
Size and condition	14	Tail	5
Back	6	Neck	4
Legs	6	Fluff	4
			100

THE BUFF LACED.

COCK.		HEN.	
Breast and thighs	20	Breast	20
Tail	15	Back	15
Head: ear-lobes and wattles, 6; other points, 8	14	Tail	15
Neck and saddle	13	Head: ear-lobes and wattles, 6; other points, 8	14
Back and wings	12	Size and condition	11
Size and condition	11	Wings	10
Fluff and under-colour	10	Fluff	10
Legs	5	Legs	5
	100		100

THE COLUMBIAN.

Body colour	25	Type	10
Hackle	24	Legs	5
Size and condition	15	Tail	5
Head: comb, 5; ear-lobes and wattles, 4; other points, 3	12	Wing carriage	4
			100

THE GOLD OR SILVER LACED.

Head: comb, 8; ear-lobes and wattles, 6; other points, 5	19	Neck	8
Breast	14	Tail	7
Back	14	Fluff	6
Size and condition	14	Legs	6
Wings	12		100

THE PARTRIDGE.

COCK.		HEN.	
Head: comb, 8; ear-lobes and wattles, 6; other points, 5 ..	19	Head: comb, 8; ear-lobes and wattles, 6; other points, 5 ..	17
Size and condition	14	Size and condition	14
Neck	12	Breast	13
Back	12	Back	13
Breast	10	Wings	13
Wings	10	Neck	8
Fluff	8	Legs	8
Legs	8	Tail	7
Tail	7	Fluff	7
	100		100

THE SILVER PENCILLED.

COCK.		HEN.	
Head: comb, 8; ear-lobes and wattles, 6; other points, 4 ..	18	Breast	16
Size and condition	13	Size and condition	14
Neck	11	Back and wings	13
Breast	11	Hackle	10
Back	11	Cushion	10
Wings	11	Legs	10
Fluff	10	Type	10
Legs	8	Head: ear-lobes and wattles, 4; other points, 4	8
Tail	7	Tail	5
	100	Fluff	4
			100

THE WHITE.

Head: comb, 8; ear-lobes and wattles, 8; other points, 6 ..	22	Back	10
Size and condition	20	Wings	10
Body	12	Tail	8
Neck	10	Legs	8
			100

Serious defects: Any feathers on shanks or toes; permanent white or yellow in ear-lobe, covering more than one-third of its surface; comb other than rose, or falling over on one side, or so large as to obstruct the sight; wry tail; deformed beak; crooked back; shanks other than yellow (except in adult cocks and hens, which may shade to light straw); feathers other than white in Whites; white in tail, or any conspicuous spotting or peppering on ground of the feathers, in Silver and Gold Laced; black in tail, or any excess of blue or grey in lacing, of Buff Laced; white in tail of Blue Laced.

YOKOHAMAS (SITTERS).

GENERAL CHARACTERISTICS.

COCK.

Head.—*Skull:* Small, but inclined to be long and tapering. *Beak:* Strong and curved. *Eyes:* Bright and full. *Comb:* Single or pea, small and even. *Face:* Of fine texture. *Ear-lobes:* Small, oval or almond shape, and fitting closely. *Wattles:* Round and small, in keeping with the comb and ear-lobes.

Neck.—Long, and furnished with long, flowing hackle.

Body.—*Breast:* Full and round. *Back:* Long and tapering towards the tail. *Wings:* Long, and carried rather low but close to the sides.

Tail.—As long and flowing as possible, with a great abundance of side hangers, the sickle and coverts narrow and hard, and the whole tail forming a graceful curve and carried somewhat low.

Legs and Feet.—*Legs:* Of medium length, and the shanks fine. *Toes:* Four on each foot.

Carriage.—Stylish and pheasant-like.

Weight.—4½ lb.

HEN.

The general characteristics of the hen are similar to those of the cock, allowing for the natural sexual differences. (NOTE.—To emphasise two of the chief points of the breed it may be said that the hen's back must be long and tapering to the tail and furnished with long saddle-hackles, and that the tail must be very long and carried horizontally, the two top feathers gracefully curved, and the coverts sickle-like.)

Weight.—2½ lb.

COLOUR.

THE DUCKWINGS (GOLD AND SILVER).

The colour of these two varieties is the same as in typical Modern Game fowls of those colours, but all black feathers must have a beetle-green sheen.

THE SPANGLED.

Beak: Horn. *Eyes:* Ruby red. *Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs and Feet:* Slate or willow.

Plumage of the Cock.—Black and white. *Neck-hackle:* White, each feather at its base having a narrow black stripe down the centre. *Breast, Thighs and Fluff:* Black, each feather being tipped with a crescent of white. *Back:* White. *Saddle-hackle:* White next to the wing, then slightly striped with black, the stripes gradually becoming heavy as they near the tail. *Wings:* Bow, white; bar, black, with a white lacing; secondaries, white and black on the inner web, which is seen only when the wings are opened. *Tail:* Black, the lower coverts having a distinct white lacing.

Plumage of the Hen —*Hackle:* White striped with black. *Breast and Thighs:* White. *Back:* White, slightly pencilled or laced with black. *Tail:* Black, coverts evenly laced all round with white.

THE WHITE.

Beak: White or yellow. *Eyes, Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs and Feet:* White or yellow.

Plumage.—Pure snow white, free from any straw tinge.

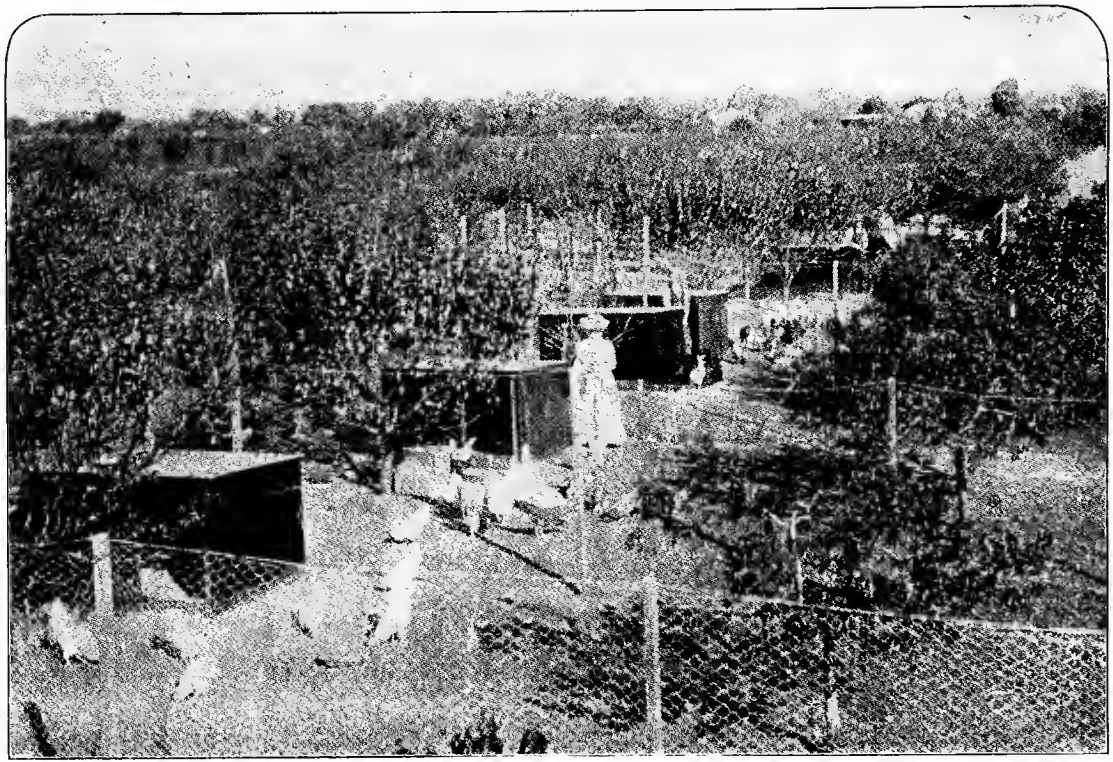
OTHER VARIETIES.

NOTE.—The foregoing are the principal varieties, and others are not sufficiently numerous to warrant description. The above colours and markings are ideal, but in Yokohamas not so much value is attached to these points as to general type and the quality and length of tail and hackles.

SCALE OF POINTS.

Type and condition	25	Head	10
Tail: quality and length	25	Size	5
Hackles: quality and length ..	20	Legs and feet	5
Colour	10		100

Serious defects: More or less than four toes on each foot; wry tail; humped back; crooked breast.



A SCENE AT SARGENFRI, SOUTH AUSTRALIA.

The home of 2,000 White Leghorns.

BANTAMS.

It will be noted that we have not given standards of all the varieties noted below as so many of them are never seen in Australia. Only those usually kept are detailed.

In most varieties of bantams the general characteristics are similar to those of the large breeds which they represent in a diminutive form. Hence it is only necessary to mention weights.—The Author.

Ancona.—*Cock:* 18 oz. to 22 oz. *Hen:* 16 oz. to 20 oz.
Andalusian.—*Cock:* 18 oz. to 22 oz. *Hen:* 16 oz. to 20 oz.
Aseel.—*Cock:* 20 oz. *Hen:* 18 oz.
Brahma.—*Cock:* 38 oz. *Hen:* 32 oz.
Pekin or Cochin.—*Cock:* 32 oz. *Hen:* 28 oz.
Game, Modern.—*Cock:* 22 oz. *Hen:* 20 oz.
Game, Old English.—*Cock:* 18 oz. to 22 oz. *Hen:* 16 oz. to 20 oz.
Hamburgh.—*Cock:* 16 oz. to 20 oz. *Hen:* 14 oz. to 17 oz.
Indian Game.—*Cock:* 48 oz. *Hen:* 40 oz.

(Note.—This standard of weight is suggested by the secretary of the Indian Game Club, after discussing the question with some of the bantam fanciers.)

Japanese.—*See* full standard below.
Leghorn.—*Cock:* 18 oz. to 22 oz. *Hen:* 16 oz. to 22 oz.
Malay.—*See* standard for varieties, etc., on page 243
Minorca.—*Cock:* 18 oz. to 22 oz. *Hen:* 16 oz. to 20 oz.
Pekin.—*See* Cochin.
Plymouth Rock.—*Cock:* 24 oz. *Hen:* 20 oz.
Polish.—*Cock:* 17 oz. to 22 oz. *Hen:* 14 oz. to 18 oz.
Rosecomb.—*See* full standard on page 269.
Scotch Grey.—*Cock:* 18 oz. to 22 oz. *Hen:* 14 oz. to 18 oz.
Sebright.—*See* full standard on page 271.
Spanish.—*Cock:* 18 oz. to 22 oz. *Hen:* 16 oz. to 20 oz.
Sultan.—*Cock:* 16 oz. to 20 oz. *Hen:* 12 oz. to 14 oz.
Wyandotte.—*Cock:* 24 oz. *Hen:* 20 oz.
Yokohama.—*Cock:* 16 oz. *Hen:* 12 oz.

Among other breeds of bantams which have been exhibited in this country are Burmese, Crève Cœur, Dorking, Houdan, Nankin, and Rumpless or Tail-less, also known as Manx, consisting chiefly of Game.—W. W. B.

THE JAPANESE BANTAM.

GENERAL CHARACTERISTICS.

Head.—*Skull:* Rather large and broad. *Beak:* Strong, and well curved. *Eyes:* Large. *Comb:* Single, large, erect and straight, and evenly serrated. *Face:* Smooth. *Ear-lobes:* Of medium size, and smooth. *Wattles:* Of medium size and pendant.

Neck.—Rather short, curving prominently backwards, with abundant hackle flowing well over the shoulders.

Body.—Short, deep, and compact. *Breast:* Very full, round, and carried prominently forward. *Back:* Very short, the cocks furnished with abundant saddle-hackle. *Wings:* Large and long, carried with the points almost under the stern and touching the ground.

Tail.—Very large, somewhat expanded, carried upright so as to come almost in contact with the back of the comb, the cock's "sickles" (the longest feathers are really not sickle-shaped) very long and only slightly curved.

Legs and Feet.—*Legs:* Very short, the shanks smooth and free from feathers. *Toes:* Four on each foot, straight, and well spread.

Carriage.—Very upright, the breast forward and the head and tail almost touching each other.

Weight.—*Cock:* 26 oz. *Hen:* 22 oz.

COLOUR.

THE BLACK.

Beak: Yellow, or yellow shaded with black. *Eyes:* Dark red. *Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs and Feet:* Corresponding with the beak.

Plumage.—Lustrous black.

THE BLACK-TAILED WHITE.

Beak: Yellow. *Eyes, Comb, Face, Wattles, and Ear-lobes:* Bright red. *Legs and Feet:* Yellow.

Plumage of the Cock.—White, with black markings. *Wings:* Primaries, dark slate or black, edged with white; secondaries, dark slate or black, with wide edging of white; the wing, when closed, shows white only. *Tail:* Black, the sickles and coverts edged with white. *Remainder of Plumage:* White.

Plumage of the Hen.—*Wings:* As in the cock. *Tail:* Black with white coverts. *Remainder of Plumage:* White.

THE WHITE.

Head points, Legs and Feet: As in the Black-Tailed White.

Plumage.—Pure white.

OTHER VARIETIES.

Other varieties are the Buff (in colour similar to buff fowls), the Cuckoo (in colour and markings similar to the Scotch Grey), the Grey (black ground colour, the cock's back, hackles, and wing-bows silver, the hen being laced throughout with silver and the neck-hackle heavily marked), and the Speckled (black and white with even markings).

SCALE OF POINTS.

Type	50	Head	5
Colour	20	Legs and feet	5
Weight	10		
Condition	10		100

Serious defects: Comb other than single; shanks other than yellow (or in Blacks yellow shaded with black); pure white in any part of the plumage of Blacks; other than white plumage in Whites; long legs; low tail carriage.

THE ROSECOMB BANTAM.

GENERAL CHARACTERISTICS.

Head.—*Skull:* Broad and short. *Beak:* Stout at the base, and rather short. *Eyes:* Full and bright. *Comb:* Neat, long, square, and well filled in front, set firmly on the skull, tapering off in width to the setting on of the leader; the top perfectly level and full of "work" (crowded with little round spikes); the leader set on with a stout base, firm, long, perfectly straight, and tapering to a point; the comb rises slightly from the front to the back, the leader rises also, and at the same angle as the rest of the comb. *Face:* Of fine texture. *Ear-lobes:* Absolutely round, having nicely rounded edges, of uniform thickness all over (not hollow nor "dished"), firmly set on the face, of kid-like texture, smooth, proportioned in size to the bird, the cock's not smaller than a sixpence

nor larger than a shilling, the hen's not larger than a three-penny piece. *Wattles:* Round, neat, and of fine texture.

Neck.—Rather short, covered with wide hackle feathers, and having a well-defined curve at the back, the cock's hackle falling gracefully and plentifully over his shoulders and wing-bows and reaching out almost to his tail.

Body.—*Breast:* Broad and carried well forward and upward, showing a bold curve from wing-bow to wing-bow. *Back:* Short, broad, and flat. *Shoulders:* Broad and flat. *Wing Flights:* Wide (each feather rounded off with a broad end, not too long, but in keeping with the bird's type), carried rather low, the cock showing only the front half of the thighs, the hen's hardly so low, but by no means carried tightly to the body; the *Stern* flat, broad, and thick—*i.e.* not "running off to nothing" at the setting on of the tail, and having an abundance of saddle feathers, the cock's saddle hackle hanging down on either side like a fringe, and extending from his tail to the middle of his back.

Tail.—Carried well back, consisting of broad feathers overlapping one another neatly; the cock's sickles long, broad from base to end, well circled with a bold sweep (the inner tail feathers not protruding beyond the sickles), the furnishing feathers broad from base to end and uniformly circled with the sickles, tips level, and hanging somewhat shorter than the sickles, the side hangers broad and long, and, together with the saddle hackles, hanging gracefully, and filling the space between the stern and the wing ends.

Legs and Feet.—*Legs:* Thighs, short, set well apart, stout at the setting on and tapering to the hocks, the shanks rather short, round, and small. *Toes:* Four on each foot.

Carriage.—Thick-set or cobby (not dumpy).

Weight.—*Cock:* 20 oz. *Hen:* 16 oz.

COLOUR.

THE BLACK.

Beak: Black. *Eyes:* Hazel or brown. *Comb, Face, and Wattles:* Brilliant cherry red. *Ear-lobes:* Spotless white, especially near wattles. *Legs and Feet:* Black.

Plumage.—Black, with as bright a green sheen as possible from the throat to the sickle ends, the wing bar (of broad feathers) of extra bright green; a point of rare quality is for the tail feathers to have a brilliant green sheen.

THE WHITE.

Head points (except *Beak:* White, and *Eyes:* Red): As in the Black. *Legs and Feet:* White.

Plumage.—Snow white, free from straw tinge.

SCALE OF POINTS.

Comb	20	Colour	12
Ear-lobes	15	Legs and feet	8
Tail	15		
Type	15		100
Condition	15		

Serious defects: Stiltiness; narrow chest; narrow back; hollow-fronted comb; coarse bone; light legs; tightly carried wings; purple sheen; purple barring; brown or grizzled flights; coloured feathers; "narrow-feathered;" white in face; blushed lobes.

THE SEBRIGHT BANTAM.

GENERAL CHARACTERISTICS.

Head.—*Skull:* Small. *Beak:* Slightly curved, and rather short. *Eyes:* Full. *Comb:* Rose, firmly and evenly set on the skull, square fronted, free from hollows, covered on top with coral-like points, narrowing behind to a distinct slightly upturned spike. *Face:* Smooth and of fine texture. *Ear-lobes:* Flat and free from folds. *Wattles:* Well rounded.

Neck.—Tapering; the cock well arched and carried very far back; the hen's upright.

Body.—Compact. *Breast:* Broad and prominent. *Back:* Very short. *Wings:* Carried very low.

Tail.—Square, well spread, and carried high.

Legs and Feet.—*Legs:* Short, the shanks slender and free from feathering. *Toes:* Four on each foot, straight, and well spread.

Carriage.—Strutting and tremulous, on tiptoe, and somewhat resembling a Fantail pigeon.

Weight.—*Cock:* 22 oz. *Hen:* 18 oz.

Plumage.—Short and tight, the feathers not too wide, but never pointed. (NOTE.—The Sebright bantam cock is hen-feathered—*i.e.* his neck is devoid of true hackle feathers, he has not a saddle-hackle, and his tail is free from sickles.)

COLOUR.

THE GOLD.

Beak: Dark horn. *Eyes:* Black, or as dark as possible. *Comb, Face, Wattles, and Ear-lobes:* Dark purple or dull red. *Legs and Feet:* Slate blue.

Plumage.—Uniform golden bay ground, with glossy green-black lacing, and dark grey under-colour, each feather being evenly and sharply laced all round its edge with a narrow margin of black.

THE SILVER.

Head points (except *Beak:* Dark blue or horn), *Legs and Feet:* As in the Gold.

Plumage.—Similar to the Gold, substituting silver-white ground for golden bay.

SCALE OF POINTS.

Lacing	25	Weight	10
Ground colour	15	Type	10
Comb	10	Condition	10
Face and ear-lobes	10		—
Tail	10		100

Serious defects: Single comb; hackles or sickle feathers in the cock; feathers on shanks; legs other than slate blue; other than four toes on each foot; wry tail or any other deformity.

WATERFOWL.

AYLESBURY DUCKS.

GENERAL CHARACTERISTICS.

Head.—Large, straight, and long. *Bill:* Long and broad, and when viewed from the side the outline almost straight from the top of the skull, the head and hill measuring from six to eight inches. *Eyes:* Full.

Neck.—Long, slender, and slightly curved.

Body.—Long, broad, and very deep. *Breast:* Full and prominent. *Keel:* Quite straight from breast to stern. *Back:* Straight and almost flat. *Wings:* Strong, and carried closely to the sides; fairly high, but not touching across the saddle. *Tail:* Short, only slightly elevated, and composed of stiff feathers, the drakes having two or three well curled feathers in the centre.

Legs and Feet.—*Legs:* Very strong and short, the bones thick, well set so as to balance the body. *Toes:* Straight, connected by web.

Carriage.—Horizontal, the keel practically parallel with the ground.

Weight.—*Drake:* 10 lb. *Duck:* 9 lb.

Plumage.—Bright and glossy, resembling satin.

COLOUR.

Bill: Pink-white, or flesh. *Eyes:* Dark. *Legs and Feet:* Bright orange.

Plumage.—Pure white.

SCALE OF POINTS.

Head and bill	20	Eyes	8
Size	20	Neck	5
Condition	12	Legs and feet	5
Keel	10		—
Colour	10		100
Type	10		

Serious defects: Plumage other than white; bill other than white or flesh colour; crooked back, wry tail, or any other deformity; ducks so heavy behind that in the opinion of the judge they will not breed.

CAYUGA DUCKS.

GENERAL CHARACTERISTICS.

Head.—Large. *Bill:* Long, wide, and flat, well set in a straight line from the tip of the eye. *Eyes:* Full.

Neck.—Long and tapering, and with a graceful curve.

Body.—Long, broad, and deep. *Breast:* Prominent; keel well forward, and forming a straight under-line from stem to stern. *Tail:* Carried well out and closely folded, the drake having two or three well curled feathers in the centre.

Legs and Feet.—*Legs:* Large and strong boned, placed midway in the body, giving the bird a carriage similar to that of the Rouen. *Toes:* Straight, connected by web.

Carriage.—Lively, clear of the ground from breast to stern.

Weight.—*Drake:* 8 lb. *Duck:* 7 lb.

Plumage.—Bright and glossy.

COLOUR.

Bill: Slate-back, with dense black saddle in the centre, but not touching the sides nor coming within one inch of the end; the bean black. *Eyes:* Black. *Legs and Feet:* Dull orange-brown.

Plumage.—Lustrous green-black, as free as possible from purple or white, the whole of the back and upper part of wings, the breast, and under-parts of body deep black, the wings naturally more lustrous than the rest of the body plumage; a brown or purple tinge is objectionable, although not a disqualification.

SCALE OF POINTS.

Type	30	Neck	5
Size	20	Tail	5
Colour	15	Legs and feet	5
Head and bill	10		——
Condition	10		100

Serious defects: Red or white feathers; orange-coloured bill; dished bill; crooked back, wry tail, or any other deformity.

INDIAN RUNNER DUCKS.

GENERAL CHARACTERISTICS.

Head.—Long, fine, and comparatively flat. *Bill:* Very long and strong, fairly broad, coming straight down from the skull and giving it the appearance of a long wedge; the long sweep of the top line of the head should continue without an indentation or stop right down to the end of the bill, and should not dip in the centre (known as "dished"). *Eyes:* Set high in the head.

Neck.—Long, and as thin as possible.

Body.—Long, narrow, and racy-looking. *Breast:* Round. *Shoulders:* Gently sloping, gradually tapering upward until they reach the neck. *Wings:* Of medium length and closely carried. *Tail:* In a line with the body, the drake having two or three curled feathers. From the shoulders the body is drawn out at length, tapering gradually to the stern, and without the slightest indication of keel, the top and lower halves resembling each other in shape, and appearing as two symmetrical ovals. (NOTE.—A good description of the general shape of the Indian Runner is that it resembles that of the old style of soda-water bottle.)

Legs and Feet.—*Legs:* Of medium length, set well back and compelling the bird to carry itself upright. *Toes:* Straight, connected by web.

Carriage.—Very erect, somewhat after the form of a Penguin.

Weight.—*Drake:* 4½ lb. *Duck:* 4 lb. Weight in either sex not to exceed 5½ lb., nor to be less than 3½ lb.

COLOUR.

Bill: Yellow, and spotted with green in young birds; entirely green in adults, and with a black bean. *Eyes:* Hazel. *Legs and Feet:* Deep and bright yellow.

Plumage.—Fawn and white. *Head:* Cap and cheeks fawn, a narrow line of white dividing those markings, and a line of white about one-eighth of an inch wide dividing the base of the bill from the head markings. *Neck:* White from the head to 1½ to 2 in. from the base of the neck, where it joins the fawn evenly and abruptly all round, the lower part of the neck fawn. *Breast* (upper part, about half-way between the point of the breast-bone and the legs), *Shoulders, Wings* (top part), *Back and Tail:* Fawn. *Flights and Fluff:* White, except an indistinct line of colour running from the base of the tail to the thighs. The colour should be uniform throughout the whole of the surface plumage, except the tail of the drake, which is of a dark shade. The fawn of the shoulders, the top part of the wings and the tail is the shape of a heart pressed flat on the

back. The two colours throughout should be cleanly cut, and not running into each other.

SCALE OF POINTS.

Colour and markings; body, 25; head, 10	35	Neck	10
Type and condition	35	Legs and Feet	5
Head, eyes, and bill	15		100

Serious defects: Blue ribbon wing bars; claret breast; horizontal shape or carriage; absence of feathers from the wings or any other part of the body; slipped or twisted wings; wry tail; or any other deformity.

ORPINGTON DUCKS.

GENERAL CHARACTERISTICS.

Head.—Fine, and of oval shape. *Bill:* Of moderate length and in a straight line from the skull. *Eyes:* Bold and full.

Neck.—Fairly long and gracefully curved.

Body.—Long, broad, and deep. *Breast:* Full and round. *Wings:* Strong, and carried closely to the sides. *Tail:* Small, and rising gently, the drake having two or three curled feathers in the centre.

Legs and Feet.—*Legs:* Strong and set well apart, of medium length. *Toes:* Straight, connected by web.

Carriage.—Somewhat upright.

Weight.—*Drake:* 7 lb. *Duck:* 6 lb.

Plumage.—Bright and glossy.

COLOUR.

THE BUFF.

Bill: Yellow, with dark bean. *Eyes:* Brown iris, blue pupil. *Legs and Feet:* Bright orange yellow.

Plumage.—Rich shade of fawn, even throughout, the head and the upper portion of the neck of the drake at least two shades darker than the body colour.

SCALE OF POINTS.

Colour	30	Legs and feet	10
Type	25		
Size	25		100
Head	10		

Serious defects: Colour other than buff; lack of size; twisted wings; wry tail; or any other deformity.

PEKIN DUCKS.

GENERAL CHARACTERISTICS.

Head.—Large, broad, and round, with high skull, rising rather abruptly from the base of the bill, and heavy cheeks. *Bill:* Short, broad and thick, slightly convex but not dished. *Eyes:* Partially shaded by heavy eyebrows and bulky cheeks.

Neck.—Long and thick, carried well forward in a graceful arch or curve, and with slightly gulleted throat.

Body.—Broad and of medium length, and without any indication of keel except a little between the legs. *Breast:* Broad and full, followed in underline by the keel (which shows very slightly between the legs) to a broad, deep paunch and stern, carried just clear of the ground. *Back:* Broad. *Wings:* Short, and carried closely to the sides. *Tail:* Well spread and carried high, the drake

having two or three curled feathers on top. (NOTE.—A good description of the general shape of the Pekin is that it resembles a small wide boat standing almost on its stern, and the bow leaning slightly forward.)

Legs and Feet.—*Legs:* Strong and stout, set well back and causing erect carriage. *Toes:* Straight connected by web.

Carriage.—Almost upright, elevated in front and sloping downward to the rear.

Weight.—*Drake:* 9 lb. *Duck:* 8 lb.

Plumage.—Very abundant, the thighs and fluff well furnished with long, soft, downy feathers.

COLOUR.

Bill: Bright orange, and free from black marks or spots. *Eyes:* Dark lead-blue. *Legs and Feet:* Bright orange.

Plumage.—Buff canary, sound and uniform, or deep cream, the former preferred.

SCALE OF POINTS.

Type	25	Neck	5
Size	20	Tail	5
Head: bill, 10; eyes, 5	15	Legs and feet	5
Colour	15		—
Condition	10		100

Serious defects: Black marks or spots on bill; white plumage; wry tail; or any other deformity.

ROUEN DUCKS.

GENERAL CHARACTERISTICS.

Head.—Massive. *Bill:* Long, wide, and flat, well set on, in a straight line from the top of the eye. *Eyes:* Bold and bright.

Neck.—Long and tapering, slightly curved but not arched, carried erect.

Body.—Very long, broad and square, very deep keel just clear of the ground from stem to stern. *Breast:* Broad and deep. *Back:* Long. *Wings:* Large and well tucked to the sides. *Tail:* Only slightly elevated, the drake's having two or three curled feathers in the centre.

Legs and Feet.—*Legs:* Of medium length, large boned, well set, so as to balance the body in a straight line. *Toes:* Straight, connected by web.

Carriage.—Horizontal, the keel practically parallel with the ground and just clear of it.

Weight.—*Drake:* 10 lb. *Duck:* 9 lb.

Plumage.—Bright and glossy.

COLOUR.

THE DRAKE.

Bill: Bright green-yellow, with black bean at the tip. *Eyes:* Dark hazel. *Legs and Feet:* Bright brick red.

Plumage.—*Head and Neck:* Rich iridescent green to within about an inch of the shoulders where the ring appears. *Ring:* Perfectly white and cleanly cut, dividing the neck and breast colours, but not quite encircling the neck, leaving a small space at the back. *Breast:* Rich claret, coming well under; cleanly cut, not running into the body colour, and quite free from white pencilling or chain armour. *Chain Armour or Flank Pencilling:* Rich blue French-grey ground, well pencilled across with glossy black, perfectly free from white, rust or iron. *Stern:* Same ground as flank, very boldly pencilled close up to the vent, finishing in an indistinct curved line (perfectly free from white) followed by rich black feathers up to the tail coverts. *Tail coverts:* Black or slate-black,

with brown tinge, with two or three green-black curled feathers in the centre. *Back and Rump:* Rich green-black from between the shoulders to the rump. *Wings:* Large coverts, pale clear grey; small coverts, French grey very finely pencilled; pinion coverts, dark grey or slate black; bars (two, composed of one line of white in the centre of the small coverts), grey tipped with black, also forming a line at the base of the flight coverts, the latter feathers slate-black on the upper side of the quill and rich iridescent blue on the lower side, each of these feathers tipped with white at the end of the lower side, forming two distinct white bars (the pinion bar being edged with black) with a bold blue ribbon mark between the two, each colour being clear and distinct and making a striking contrast; flights, slate-black with brown tinge free from white. The markings throughout the whole plumage should be cleanly cut and well defined in every detail, the colours distinct and not shading into each other.

THE DUCK.

Bill: Bright orange ground, with black bean at the tip, and with black saddle extending almost to each side and about two-thirds down towards the tip. *Eyes:* Dark hazel. *Legs and Feet:* Dull orange brown.

Plumage.—*Head:* Rich (golden, almond, or chestnut) brown, with a wide brown-black line from the base of the bill to the neck, and very bold black lines across the head, above and below the eyes, filled in with smaller lines. *Neck:* The same colour as the head, with a wide brown line at the back from the shoulders, shading to black at the head. *Wings:* Bars, two distinct white bars with a bold blue ribbon-mark between, as in the drake; flights, slate black with brown tinge, no white. *Remainder of Plumage:* The ground of rich (golden, almond, or chestnut) brown of level shade, every feather distinctly pencilled from throat and breast to flank and stern, the markings to be rich black or very dark brown, the black pencilling on the rump having a green lustre.

SCALE OF POINTS.

THE DRAKE.

Colour: breast, 10; bill, 5; neck, 5; ring, 5; chain armour, 5; back and rump, 5; wings, 5; stern, 5; tail, 5	50
Markings	10
Size	10
Type	10
Condition	10
Head	5
Legs and feet	5
	100

THE DUCK.

Colour: ground, 15; bill, 10; head, 5; neck, 5; wings, 5 ..	40
Pencilling	20
Size	10
Type	10
Condition	10
Head	5
Legs and feet	5
	100

Serious defects: Leaden bill; no wing bars; white flights; broken down in stern; wings down or twisted; wry tail; or any other deformity. In the drake no ring on neck or black saddle or bill; in the duck, white ring, or approaching white, on neck.

OTHER BREEDS.

Beyond the foregoing mentioned breeds of ducks those occasionally seen at exhibitions in this country are East Indian (Black), Muscovy (Black and White and White), Swedish (Blue), and Ornamental varieties, such as Bahamas, Calls, Carolinas, Mandarins, Spot-Bills, Shovellers, and Whistlers; but they are not kept or exhibited in sufficient numbers to warrant description.—W. W. B.

EMBDEN GEESE.

GENERAL CHARACTERISTICS.

Head.—Long and straight. *Bill:* Fairly short, stout at the base. *Eyes:* Full.

Neck.—Long and swan like, the throat uniform with the under mandible and neck—*i.e.* without a gullet.

Body.—Broad and thick; frame, long. *Breast:* Solid, with as little indication of keel as possible. *Shoulders:* Broad. *Back:* Straight. *Wings:* Large and strong. *Tail:* Carried well out and close. *Paunch:* Deep. *Stern:* Broad.

Legs and Feet.—*Legs:* Fairly short, large, strong boned. *Toes:* Straight, connected by web.

Carriage.—Upright and defiant.

Weight.—*Gander:* 30 lb. to 34 lb. *Goose:* 20 lb. to 22 lb.

Plumage.—Hard, tight, and glossy.

COLOUR.

Bill: Orange. *Eyes:* Light blue. *Legs and Feet:* Bright orange.

Plumage.—Pure white.

SCALE OF POINTS.

Size	20	Colour	10
Breast	20	Condition	10
Head	12	Legs and feet	6
Carriage	12		—
Neck	10		100

Serious defects: Plumage other than white; wry tail; or any other deformity.

TOULOUSE GEESE.

GENERAL CHARACTERISTICS.

Head.—Strong and massive. *Bill:* Strong, fairly short, and well set, in a uniform sweep, or nearly so, from the point of the bill to the back of the skull. *Eyes:* Full.

Neck.—Long and thick, with the throat well gulleted.

Body.—Long, broad, and deep. *Breast:* Prominent, deep and full; keel straight from stem to paunch, increasing in width to the stern and forming a straight underline. *Shoulders:* Broad. *Back:* Slightly curved from the neck to the tail. *Wings:* Large and strong. *Tail:* Somewhat short, carried high and well spread; paunch and stern heavy and wide, with a full rising sweep to the tail.

Legs and Feet.—*Legs:* Short, stout, strong boned. *Toes:* Straight, connected by web.

Carriage.—Somewhat horizontal, and not so upright in front as the Embden.

Weight.—*Gander:* 28 lb. to 30 lb. *Goose:* 20 lb. to 22 lb.

Plumage.—Full and bright.

COLOUR.

Bill: Orange. *Eyes:* Dark brown or hazel. *Legs and Feet:* Orange.

Plumage.—*Neck:* Dark grey. *Breast and Keel:* Sound grey, rather light, shading dark to thighs. *Back, Wings and Thighs:* Dark steel grey, each feather laced with an almost white edging, the flights without white. *Stern, Paunch, and Tail:* White, the tail with a broad band of grey across the centre.

SCALE OF POINTS.

Size	20	Colour and marking	10
Carriage	15	Condition	10
Head and throat	15	Neck	5
Breast and keel	10	Legs and feet	5
Tail, stern and paunch	10		100

Serious defects.—Patches of black or white among the grey plumage; slipped or cut wings; wry tail; or any other deformity.

TURKEYS.

GENERAL CHARACTERISTICS.

Head.—Long and broad, and carunculated (covered with fleshy protuberances). *Beak:* Strong, curved, well set in the head. *Eyes:* Full. *Throat Wattle:* Large and pendant.

Neck.—Long, curving backward toward the tail, the top and most of the front carunculated.

Body.—Long, deep through the centre, and well rounded. *Breast:* Broad and full; the cock's beard long, bristling, and prominent. *Back:* Somewhat curving, rising from the neck to the centre and descending in a graceful curve to the tail. *Wings:* Large and powerful, carried well up and closely to the sides.

Tail.—Long and drooping, the end almost touching the ground.

Legs and Feet.—*Legs:* Long, stout, and strong. *Toes:* Straight and strong.

Weight.—Black cock, 27 lb.; hen, 18 lb. Bronze cock, 36 lb.; hen, 20 lb. White cock, 26 lb.; hen, 16 lb.

Carriage.—Stately and upright.

Plumage.—Hard and glossy.

COLOUR.

THE BLACK.

Beak: Dark horn or slate black. *Eyes:* Dark hazel. *Head* (including *Face, Jaws, Throat, Wattle and Caruncles*): Brilliant red, changeable to blue-white. *Legs and feet:* Dark lead or slate black.

Plumage.—Lustrous black.

THE BRONZE.

Beak: Light horn at the tip and dark at the base. *Eyes and Head:* As in the Black. *Legs and Feet:* Black, approaching brown in young birds, of a pink hue or flesh in adults.

Plumage of the Cock.—*Neck:* Light brilliant bronze. *Beard:* Black. *Back:* Light brilliant bronze, each feather terminating in a narrow black band extending across the end. *Breast:* Dark brilliant bronze. *Body:* Black, shaded with bronze, but not so brilliant as that of the breast. *Wings:* Bows, black, with a brilliant bronze of green lustre; coverts, rich bronze, the feathers terminating in a wide black band, and forming a broad bronze band across the wings when folded, and separated from the primaries by a glossy black ribbon-like mark, formed by the ends of the coverts; primaries, black or dark brown, pencilled across with bars of white or grey, the more evenly and regularly the better; secondaries, similar to the primaries, the colours changing to a bronze brown as the middle of the back is approached, but with little admixture of white; an edging of white or brown on the primaries or secondaries is very objectionable. *Tail:* Dull black, each feather regularly pencilled with narrow bands of brown, ending in a broad black band with a wide edging of dull white or grey, the coverts dull black or dark brown, each feather regularly pencilled with narrow bands of brown, ending in a wide black and bronze band extending across the feather, with a wide edging of white or grey.

NOTE: The more distinct the colours throughout the whole plumage the better.

Plumage of the Hen.—Similar to that of the cock (but not so brilliant nor so clearly defined) except an edging of white on the feathers of the back, breast, body, and wing-bows, the edging to be narrow in front and gradually widen as it approaches the rear.

THE WHITE.

Beak: Pink or flesh. *Eyes and Head:* As in the Black. *Legs and Feet:* White or pink-white.

Plumage.—Pure white; cock's beard, deep black.

SCALE OF POINTS.

Type	30	Legs and feet	5
Colour	25	Condition	5
Weight	25		—
Head and wattle	10		100

Serious defects: Wry tail; crooked breast-bone; any deformity. In the Black: Feathers of any other colour; cocks weighing less than 20 lb., and hens less than 12 lb. In the Bronze: White feathers in any part; wings clear black or brown, or minus white or grey bars more than one-half the length of the primaries; back, tail or tail coverts clear black, brown, or grey; cocks weighing less than 30 lb., and hens less than 18 lb. In the White: Feathers of any other colour; legs other than white or pink-white; cocks weighing less than 20 lb., and hens less than 12 lb.

GLOSSARY.

Bands.—*See* "Pencilling."

Barring.—Alternate stripes of light and dark across a feather, somewhat similar to the pencilling of a Gold or Silver Pencilled Hamburgh hen, but generally not so fine, and most distinctly seen in the Barred Plymouth Rock.

Bean.—A black spot or mark at the tip of the upper mandible of a waterfowl, seen in Cayugas, Indian Runners, Rouen, and other breeds of Waterfowl.

Beard.—A bunch of feathers under the throat of some breeds of fowls, as Faverolles, Houdans, and some varieties of Polish; also a tuft of coarse hair growing from the breast of an adult turkey cock.

Beetle Brows.—Heavy overhanging eyebrows, as for instance in the Malays.

Boots.—Feathers projecting from the toes, as in Brahmas and Cochins, and Booted and Pekin bantams.

Breast.—The front of a fowl's body above the point of the keel bone to the base of the neck.

Cap.—A comb; also the upper part of a fowl's skull.

Cape.—The feathers under and at the base of the neck-hackle, between the shoulders; the word, however, is seldom used.

Carriage.—The bearing, attitude, or style of a bird.

Cloudy—Indistinct (*see* "Mossy").

Collar.—A white mark almost encircling the neck of a Rouen drake, known as the "Ring."

Comb.—The fleshy protuberance on the top of a fowl's head, varying considerably in type and size, and including the cushion of the Silkie, the horn of La Flèche, the leaf or shell of the Houdan, the pea or triple of the Brahma, the rose of the Hamburgh, Redcap, Wyandotte, etc., the single of the Cochin, Leghorn, Minorca, etc., and the strawberry or half-walnut of the Malay.

Condition.—The state of a fowl as regards its health, the brightness of its headgear and plumage.

Crest.—A crown or tuft of feathers on the head; known also as "Top-knot."

Cushion.—A mass of feathers over the back of a hen covering the root of her tail, and most prominently developed in the Cochin.

Cushion Comb.—*See* standard for Silkies.

Dewlap.—The gullet (so called) seen to the best advantage in adult geese.

Diamond.—The wing-bay, most generally in use among Game fanciers.

Dubbing.—Cutting off the comb, wattles, and ear-lobes, so as to leave a fowl's head smooth.

Duck-footed.—Having feet like a duck, generally applied to Game fowls when the hind toe instead of being straight out behind in a line with the middle toe, lies close to the inner side of the foot, allowable, though not desirable, in the Aseel, but a fault in all other breeds of fowl.

Ear-lobes.—The folds of skin hanging below the ears, and by some people called the "deaf ears." The lobes vary in size, shape, and colour, the last named including purple-black, turquoise blue, cream, red, white, and white sanded with red.

Flights.—The primary feathers of the wings, used in flying, but tucked out of sight when the bird is at rest.

Fluff.—Soft downy feathers around the thighs, chiefly developed in birds of the Cochin type; also the downy part of the feather (the under-colour) not seen as a rule until the bird is handled; also the hair-like growth sometimes found on the shanks and feet of clean-legged fowls, and in this case a defect.

Frizzled.—Curled, each feather curled backwards so that its point is towards the head of the bird.

Furnished.—Feathered and adorned as an adult. A cockerel which has grown his full tail, hackles, comb, etc., is said to be "furnished," but the term is chiefly used when referring only to soft feathered fowls, such as Cochins.

Gipsy Face.—The skin of the face of a dark purple or mulberry colour; a face covered with short black hairs or feathers.

Gullet.—The loose part of the lower mandible; the dewlap of a goose. It appears on fowls, and is seen most distinctly perhaps in old Cochin hens, when it resembles a miniature beard of feathers.

Hackles.—The neck plumage of a fowl and the saddle plumage of a cock, consisting of long, narrow, pointed feathers.

Hangers.—The lesser sickles and tail coverts known as tail-hangers, and the saddle hackle as saddle-hangers.

Hock.—The joint between the thigh and the shank, sometimes called the knee.

Horn Comb.—A comb said to resemble horns, but generally similar to the letter V, and seen to the best advantage on a matured La Flèche cock.

In-kneed.—*See* "Knock-kneed."

Keel.—The vertical part of the breast-bone, and in ducks the dependent flesh and skin below it.

Knock-kneed.—The hocks near together instead of well apart.

Laced, Lacing.—A stripe or edging all round a feather, differing in colour from that of the ground, single in such breeds as Andalusians, Wyandottes, and Sebright Bantams, and double in Indian Game hens, in the latter case the inner lacing not being as broad as the outer, and in a measure resembling the pencilling of the Rouen duck.

Leader.—The single spike terminating the rose type of comb; also known as the "spike."

Leaf Comb.—A comb resembling in shape a butterfly with its wings nearly wide open, and the body of the insect resting on the front of the fowl's head; it has also been referred to as resembling two escallop shells joined near the base, the join covered with a piece of coral; seen to the best advantage on a Houdan cock.

Leg.—The scaly part or shank.

Leg-feathers.—Feathers projecting from the outer sides of the shanks in such breeds as Brahmas, Cochins, Faverolles, Langshans, Malines, Silkies, and Sultans.

Lobes.—*See* "Ear-lobes."

Marking.—The barring, lacing, pencilling, spangling, and the like, of the plumage.

Mealy.—Stippled with a lighter shade, a defect in buff coloured fowls.

Moons.—Spangles.

Mossy.—Confused or indistinct marking; a defect.

Muff, Muffling.—Tufts of feathers on each side of the face and attached to the beard, seen in such breeds as Crève Cœurs, Faverolles, Houdans, and some varieties of Polish; also known as the "Whiskers"; often applied to the beard and whiskers—*i.e.* the whole of the head feathering except the crest. In Old English Game the Muffled variety has a thick growth of feathers under the throat differing in formation from that of the breeds just named.

Pea Comb.—A triple comb, resembling three small single combs joined together at the base and rear, but distinctly divided, the middle one being the highest, and best seen on the head of a well-bred Brahma.

Pencilled Spikes.—The spikes of a single comb that are very long and narrow, almost as broad at the base as at the top; generally a defect.

Pencilling.—Small markings or stripes over a feather, either straight across as in Gold and Silver Pencilled Hamburgh hens (and often known as bands), or in crescent-like form, following the outline of the feather, as in Brahma (Dark), Cochin (Partridge), Dorking (Silver Grey), Game (some varieties), Leghorn (Brown and Duckwing), and Wyandotte (Partridge and Silver Pencilled) hens.

Primaries.—See "Flights.

Rose Comb.—A broad, solid comb, the top of which is nearly level and covered with several small regular points. It varies in length, width, and carriage according to breed.

Rust.—A patch of red-brown colour on the wings of some breeds of females, chiefly those of the Black-red colour; brown or red marking in black fluff or breast feathers; known also as "foxiness" in hens.

Saddle.—The posterior part of the back, reaching to the tail of the cock, and answering to the cushion of the hen; also, the centre of a duck's upper bill, from the base two-thirds down toward the tip (near the bean), and nearly across to each side of the bill.

Saddle-hackle.—See "Hackles."

Secondaries.—The quill feathers of the wings which are visible when the wings are folded.

Self-colour.—A uniform colour, unmixed with any other.

Shaft.—The stem or quill part of a feather.

Shafty.—Lighter coloured on the stem than on the webbing, a desirable marking in Dark Dorking hens, but generally a defect in other breeds.

Shank.—See "Leg."

Sheen.—Bright and showy; green-black; a rich, soft, transparent green on a black foundation. The word is confined to the beetle-green coloured plumage of black fowls in show condition, and to the colour of the black striping and lacing of other fowls. A bright and showy bird of any other than black is said to be lustrous.

Shell Comb.—See "Leaf Comb."

Sickles.—The long curved feathers of a cock's tail, properly applied to the top pair only, but sometimes used for the curved feathers of the tail next to them, the prominent tail-coverts, which are also known as lesser sickles.

Single Comb.—A comb which, when viewed from the front, is narrow, and having its spikes in line behind each other; it consists of a blade surmounted by spikes, the lower (solid) portion being the blade, and the spaces between the spikes the serrations. It differs in size, shape, and number of serrations according to breeds.

Spangling.—The marking produced by a large spot of colour on each feather differing from that of the ground-colour. When applied to a laced breed, as in the Polish, the spangling is the broader lacing at the tip of each feather. The spangle which approaches to a circular form is the more correct, since when of the crescent or horse-shoe shape it is passing towards the laced character.

Spur.—A projection of horny substance on the shanks of cocks, and sometimes of hens, near the heel.

Squirrel Tail.—A tail, any part of which projects in front of a perpendicular line over the back; a tail that bends sharply over the back and touches, or almost touches, the head, like that of a squirrel.

Strawberry Comb.—A comb somewhat resembling a half strawberry, with the round part of the fruit uppermost; known also as the half-walnut comb.

Sub-variety.—*See* "Variety."

Surface-colour.—That portion of the feathers exposed to view.

Symmetry.—Perfection of proportion; harmony of all the parts of a fowl, taken as a whole, and typical of the variety it represents; shape.

Tail-coverts.—The soft, curved feathers at the sides of the lower part of the tail.

Tail-feathers.—The straight and stiff feathers of the tail only. The top pair is sometimes slightly curved, but they are generally straight or nearly so, and, in the male fowl, are contained inside the sickles and coverts.

Thigh.—That part of the leg above the shank, and covered with feathers.

Thumb-marked comb.—A single comb possessing indentations in the blade: generally a defect.

Top-knot.—*See* "Crest."

Tri-coloured.—Of three colours. The term refers chiefly to buff fowls, and is generally applied only to males when their hackles and tails are dark compared with the general plumage, and the wing-bows are darker.

Trio.—A male and two females.

Type.—*See* "Symmetry."

Under-colour.—The colour of the plumage seen when a bird is handled—that is, when the surface is lifted; the colour of the fluff of the feather.

Variety.—A definite branch of a breed known by its distinctive colour or marking—for example, the Black is a variety of the Leghorn. Sub-variety, a sub-division of an established variety, differing in shape of comb from the original—for example, the rose-combed Black is a sub-variety of the Black Leghorn. Thus the breed includes all the varieties and sub-varieties, which should conform to the same standard shape.

Vulture Hocks.—Stiff projecting quill-feathers at the hock joint, growing on the thighs and extending backwards.

Wattles.—The fleshy depending structure at each side of the base of the beak, chiefly developed in male birds.

Web.—A flat and thin structure. Web of feather: the flat or plume portion. Web of feet: the flat skin between the toes. Web of wing: the triangular skin seen when the wing is extended.

Whiskers.—Feathers growing from the sides of the face (*see* "Beard" and "Muff").

Wing-bar.—Any line of dark colour across the middle of the wing, caused by the colour or marking of the feathers known as the lower wing-coverts.

Wing-bay.—The triangular part of the folded wing between the wing-bar and the point (*See* "Diamond"),

Wing-bow.—The upper or shoulder part of the wing.

Wing-butt or Wing-point.—The end of the primaries; the corners or ends of the wing. The upper ends are more properly called the shoulder-butts, and are thus termed by Game fanciers. The lower, similarly, are often called the lower-butts.

Wing-coverts.—The feathers covering the roots ot the secondary quills.

Wry Tail.—A tail carried awry, to the right or left side of the continuation of the backbone, and not straight with the body of the fowl.

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